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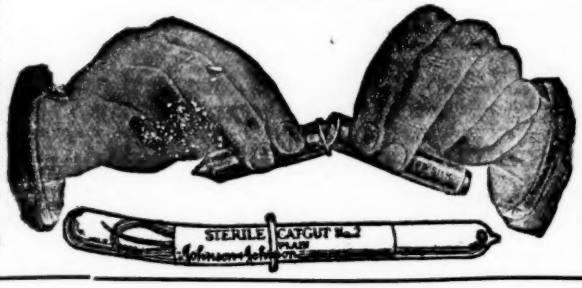

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THE treatment of a bacterial infection is always approached with certain *a priori* assumptions. The surgeon who treats wounds with antiseptics assumes that the organism is unable to deal with the infecting microbes. The proper assumption would be that the organism must—for else there would be bacterial infections from which nobody could recover—be competent to deal with every species of microbe. And clearly it is impossible to know what the body is capable of achieving, or to fix any limit to its bactericidal powers, before we have found out how to bring those powers effectively to bear, and before the conditions essential to success have been realised in wounds.

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In the *neutralised serum* we have, as in every other blood medium, streptococcus growth in both the aerobic and anaerobic tube in the whole series of after-washes. The staphylococcus also grows in all but the last after-washes. The colon bacillus grows only in the aerobic tube. Lastly, the bacillus of Welch grows in the aerobic tube in all, and in the anaerobic tube in all the earlier after-washes. Here again the anaerobic conditions seem to hinder rather than to favour the growth of this organism.

TABLE I.

(A) *Streptococcus pyogenes.* (B) *Staphylococcus.* (C) *B. coli.* (D) *B. Welchii.*

Serial No. of after-wash.	Unaltered serum from clot.								Serum deprived of its antitryptic power by addition of trypsin.								Serum rendered almost neutral by addition of acid.								Whole blood defibrinated.							
	Aerobic culture.				Anaerobic culture.				Aerobic culture.				Anaerobic culture.				Aerobic culture.				Anaerobic culture.				Aerobic culture.				Anaerobic culture.			
	A	B	C	D	A	B	C	D	A	B	C	D	A	B	C	D	A	B	C	D	A	B	C	D	A	B	C	D	A	B	C	D
1	++	++	+	0					+	++	++	++	++	+	+	++	+	++	++	++	++	+	+	-	+	+	++	+	+	+	+	+
2	++	+	+	0	++	0	+	0	+	++	++	++	++	+	++	++	+	++	++	++	+	+	+	++	+	+	+	0	+	+	0	0
3	++	+	+	0	++	0	+	0	++	++	++	++	++	+	++	++	+	++	+	+	+	+	+	+	+	+	+	0	+	+	+	0
4	+	+	+	0	+	0	+	0	++	++	++	++	++	0	++	++	+	+	+	+	+	+	0	+	+	+	+	+	+	+	0	0
5	+	0	0	0	+	0	0	0	++	++	++	++	++	0	++	++	+	+	+	+	+	+	0	+	+	+	+	0	+	+	0	0
6	+	+	0	0	+	0	0	0	++	++	++	++	++	0	+	++	+	+	+	+	+	+	0	+	+	0	+	+	+	+	0	0
7	+	+	0	0	+	0	0	0	++	++	++	++	++	0	+	++	+	+	+	+	+	+	0	0	+	+	+	0	+	0	0	0
8	+	0	0	0	+	0	0	0	++	++	++	++	++	0	+	++	+	+	+	0	+	0	0	0	+	0	0	0	+	0	0	0
9	+	+	0	0	+	0	0	0	++	++	++	++	++	0	+	++	+	0	+	+	+	0	0	0	+	0	0	0	+	0	0	0
10	+	0	0	0	+	0	0	0	++	++	++	0	++	0	0	++	+	0	0	+	+	0	0	0	+	0	0	0	+	0	0	0

+ = Growth. ++ = Abundant growth. 0 = No growth.

Finally, in *the whole blood* the streptococcus and staphylococcus again grow both in the aerobic and anaerobic tubes—the former microbe in each tube in all the after-washes, and the latter more irregularly, especially when we come to the later after-washes. It may also be incidentally noted that in the aerobic tube the colon bacillus and the bacillus of Welch put in in the earlier after-washes an occasional appearance.

For the surgeon these are too many bacteriological details. Let us try to extract from them only what is of practical use. The important generalisations are these:—

(1) *Serum from normal blood and normal lymph* constitute for the vast majority of microbes met with in foul wounds a very unfavourable culture-medium. Of the microbes encountered in wounds only the streptococcus, the staphylococcus, and certain diphtheroid bacilli can grow in unaltered serum; and when we make a minimal implantation the streptococcus alone gives a growth. In other words, the microbes of wounds fall into two categories: *sero-saprophytes*, which grow in corrupted, and *serophytes* in

[1] Wright and Colebrook, THE LANCET, June 1st, 1918, p. 763.

uncorrupted blood-fluids. Two practical points emerge: (*a*) when a wound contains sero-saprophytic organisms we may know that we have there corrupted discharges. And (*b*) if we can then flood the wound with wholesome serum and keep that serum uncorrupted the sero-saprophytes will disappear and the infection will be reduced to a purely serophytic, generally to a streptococcic and staphylococcic, infection. We have then, instead of a foul, a "clean" wound.

(2) *Trypsinised serum*—in other words, the kind of serum we have in the wound cavity and tissues when any exudate stands stagnant upon disintegrated leucocytes—provides an excellent culture medium for practically every species of microbe. In this medium the bacillus of Welch, the streptococcus and countless other microbes all luxuriate. It must therefore be our great aim to prevent, or put an end to, the corruption of the discharges. We shall presently see all that that implies.

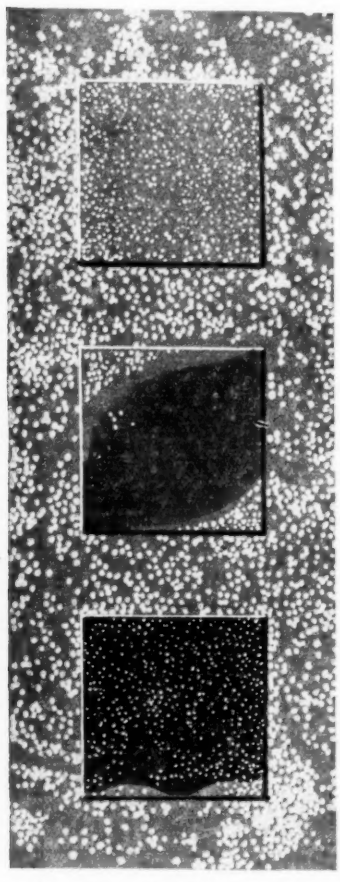


FIG. 1.—Effect of imposing samples taken from centrifuged blood upon an agar surface thickly implanted with staphylococcus. A, Sample of serum. B, Sample of leucocytic layer. C, Sample of red blood corpuscle layer.

(3) *Neutralised or partially neutralised serum* — and we have such a serum in every condition of collapse —is a medium in which not only the ordinary serophytes, but also all the microbes of gas-gangrene class, flourish. These gas-gangrene microbes—and this is important for treatment — are not genuine serophytes, but serophytes only of the acidosed blood-fluids. That means that a gas-gangrene infection in tissues, in the case where the circulation is uninterrupted, can be combated by draining away the acidosed lymph through incisions and replacing it by an alkaline lymph. Where the general blood-fluid is acidosed we must begin by remedying that.

(4) The *whole blood* constitutes a medium of essentially the same quality as the serum. In it, as in the serum, only serophytic microbes—and of the microbes usually found in wounds only the streptococcus and staphylococcus—will grow. And in whole blood, as in serum, the streptococcus in particular will grow from quite minimal implantations.

We must not misinterpret this. It is, as we have seen, difficult to believe that there should be microbes which can be killed neither by the blood-fluids nor by leucocytes. We must therefore scrutinise our experiment to see how the microbes can have escaped destruction. Here we must take note of the fact that the blood *in vitro* always separates itself into a corpuscular and a serum element. In defibrinated blood we have a layer of serum above and corpuscles below; in coagulated blood we have a cylinder of corpuscles surrounded with serum. If now a streptococcus escapes from the corpuscles into the serum it will, precisely as if originally inoculated into the serum, be quite out of reach of the phagocytes. Again, if a streptococcus remains lodged in the corpuscular layer or clot it will have to be discovered and killed by the phagocyte. And if not quickly discovered it will grow out into a colony, and then the phagocytes will be kept at bay. Reflection thus shows us that, even on the postulate that leucocytes can kill every species of microbe, it is only natural that streptococci should succeed in growing in whole blood.

With this we have obtained a clue as to what we must do and leave undone if we want to get ocular demonstration of bactericidal effects achieved by leucocytic agency. First, we must get rid of the serum which provides a culture medium; and, secondly, we must take steps to bring to bear upon the infection a maximum force of phagocytes. The simplest way will be to centrifuge defibrinated blood. By that we separate the blood into three layers. Above will be the serum; immediately below this is a layer of leucocytes admixed with a few red corpuscles; and below this again a deposit of red corpuscles with only a very small admixture of leucocytes. We now take an agar plate; implant it fairly heavily with streptococcus or staphylococcus; and then transfer to it a drop of each of the three layers of our centrifuged blood, carefully siphoning off the last drop of serum before taking the sample of the leucocytic layer, and taking our sample of red blood corpuscles from the bottom of the tube. We then cover in each case with a cover-glass. Here in the sample from the leucocytic layer are realised all the conditions required for the destruction of microbes by leucocytic agency. A considerable force of leucocytes has been brought together. A moist chamber is provided to keep them alive. Their locomotion is facilitated by their disposal between two closely apposed surfaces. And the excess of serum which provides a culture medium for the microbes, and conveys them out of reach of the phagocytes, has been removed.

FIG. 2.—Glass laths in centrifuged blood, showing the red clot below, above this the leucocytic layer, and above this the white clot contracted round the laths.

The results obtained on cultivating the three specimens are shown in Fig. 1. In the serum specimen we have just the same number of colonies as upon the surrounding agar. Under the cover-glass which covers the specimen from the leucocytic layer almost no colonies make their appearance. And in the specimen where we have practically only red corpuscles again a great number of colonies come up.

The concentration of the leucocytes and the elimination of the excess of serum here shown to be requisite for the achievement of conspicuous bactericidal effects can be obtained also in another way—that is to say, by emigration. Just as in the body leucocytes will come out from the capillary blood, so outside the body they will come out from a blood clot. They will attach themselves to glass, and we can then apply this to an agar surface implanted with microbes.[2] Where we want to operate with denser masses of leucocytes than simple imposition of blood upon glass will furnish, we can—and this will be analogous to emigration from capillaries crowded with leucocytes—concentrate our leucocytes by centrifugalisation before we set them to emigrate. The technique is quite simple. We prick the finger and fill our blood into a tube about 8 mm. in diameter and 3 to 5 cm. in length. We now centrifuge, having first inserted into the blood a glass lath cut from a thin microscope slide—or, better, as shown in Fig. 2, a couple of such laths placed back-to-back. We now incubate for an hour. During this time the leucocytes attach themselves in ever-increasing numbers to the laths (Fig. 3) giving us

[2] Wright: New Methods for the Study of Emigration, &c., THE LANCET, Jan. 26th, 1918.

across the middle a band some 3 to 5 mm. in breadth in which the leucocytes lie absolutely edge to edge, and below this band a certain number of scattered leucocytes. We now with forceps gently disengage our laths from the clot, draining off superfluous serum; turn the leucocyte-covered face down and apply it to an agar surface thickly implanted with staphylococcus, streptococcus, or, if we like, any other organism. We then incubate and take note of what happens. Under the upper part of the lath—that part which is quite free from leucocytes—the streptococcal or staphylococcal colonies come up just as thickly as on the surrounding agar—the staphylococcal colonies, however (because of the anaerobic conditions) less luxuriantly. Across the middle of the lath where the leucocytes are densest we have a clear band entirely free from colonies. And on the lower part of the lath we have only scattered colonies. (Fig. 4.) Control experiments with laths dried before they were imposed upon implanted agar show that it is the living leucocytes that are here the sterilising agents. And again control experiments with laths washed off with physiological salt solution or heated serum show that the opsonic properties of the serum are not essential to the achievement of bactericidal effects.

With these and the foregoing experiments the problem of killing serophytic microbes by leucocytic agency has at last found its solution.

An idea of the magnitude of the bactericidal effects achieved can be obtained from Table II. The films of leucocytes here employed were derived in each case from a clot imposed upon a glass surface.

We pass now to consider the application of this to wounds. It will have an application—not to foul wounds with corrupted exudate and a sero-saprophytic infection, for in such wounds phagocytosis is abolished—but to clean wounds, that is, wounds with uncorrupted exudate and purely serophytic infection. If we take from such a clean wound a drop of thick pus, place it upon an agar plate, and put down upon it a cover-glass—let us call this a *bio-pyo-culture*—we shall have there substantially the same conditions as when we imposed our leucocyte-covered laths on an infected agar surface. Fig. 5 A shows that we obtain a precisely similar result. The central area of the specimen where the leucocytes form a continuous sheet remains sterile. On the

TABLE II.—*Showing the Bactericidal Effect Exerted by Emigrated Leucocytes Operating in their Own Serum upon Streptococcus Pyogenes and Staphylococcus.*

From whom obtained.	Nature of microbe with which tested.	No. of colonies which developed upon 1 sq. cm. of implanted agar imposed upon glass surface covered with emigrated leucocytes.	No. of colonies* which developed upon same area of same implanted agar imposed upon clean glass surface.	Proportion of implanted microbes killed.
		Normal Bloods.		Per cent.
A. E. W.	Streptococcus.	16	210	92·4
W. D. T.	,,	8	210	96·2
N. M. K.	,,	15	210	93
A. F.	,,	12	100	88
A. F.	,,	31 40 / 42 26 } average 35.	4,900	99
L. C.	,,	3	5,000	Over 99·9
		Bloods from Patients whose Wounds were Infected with Streptococcus		
Pte. C.	Streptococcus.	0	50,000	100
Pte. F.	,,	0	50,000	100
Sgt. S.	,,	0	50,000	100
Pte. H.	,,	20	5,000	99·6
		Normal Bloods.		
J. F.	Staphylococcus.	9	80	88
L. C.	,,	20	202	90
A. F.	,,	0 / 2 } duplicate tests.	250	} 100 / } 99

* Where these were too numerous for direct numeration their number was arrived at by counting the number of colonies which developed on agar implanted with a 100- or 1000-fold dilution of the original bacterial suspension.

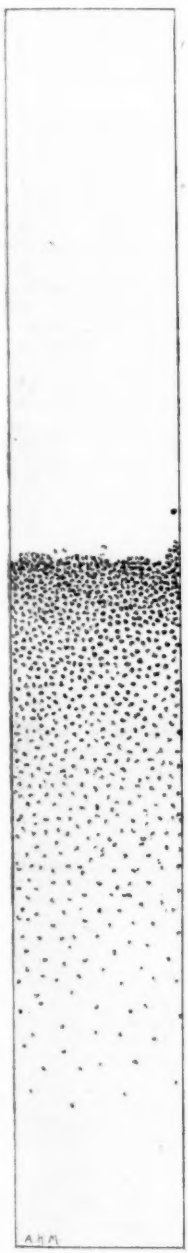


FIG. 3.—Emigrated leucocytes on a glass lath incubated in centrifuged blood for one hour.

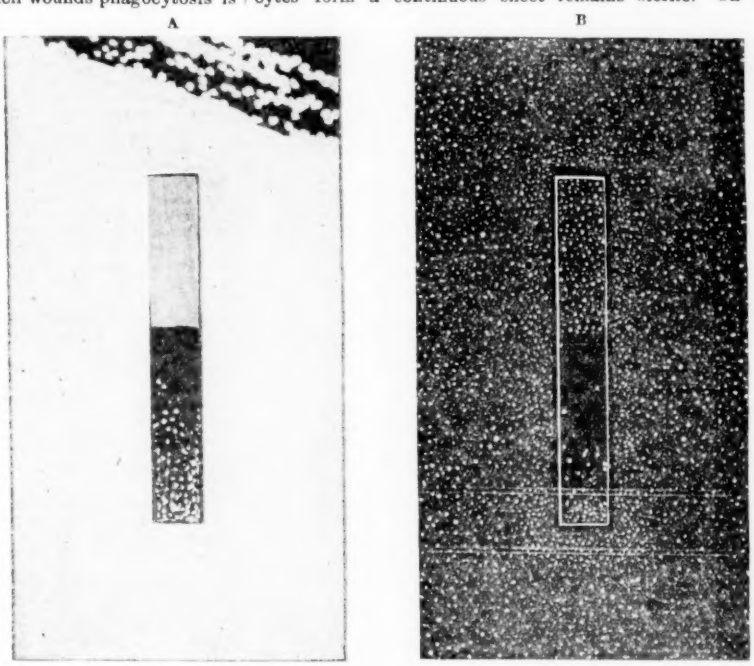


FIG. 4.—Glass laths, such as are shown in Fig. 3, imposed on agar surfaces implanted (A) with staphylococcus, (B) with a hæmolytic streptococcus pyogenes.

margin of the pus a certain number of colonies—here they are colonies of streptococcus—come up. With this result we may contrast that obtained when we mix a drop of serum with the pus (Fig. 5 B). Here the streptococci, where they have been carried out of reach of the phagocytes, grow unrestrained. We may note also the result (Fig. 5 C) of drying the pus (it was merely spread out thin and left uncovered); and of heating it to 48° C., the thermal death-point of the leucocytes (Fig. 5 D); and of freezing and thawing it (Fig. 5 E). By each of these three methods of *necro-pyo-culture* we obtain preparations in which the pus is thickly studded with microbic colonies.

Of interest in this connexion are also the results displayed in Fig. 6, A and B. In A we have with the unheated pus a perfectly sterile bio-pyo-culture. In the necro-pyo-culture made with the pus heated to 46° C. we have (Fig. 6 B) colonies of the bacillus of Welch with gas formation. The reader will appreciate that these cover-glass preparations give us anaerobic conditions.

FIG. 6.—A, Bio-pyo-culture of a pus containing the gas-gangrene bacillus. B, Necro-pyo-culture of the same pus heated to 46° C. showing growth of the gas-gangrene bacillus with gas formation.

The next figures bring before the eye a point of quite cardinal importance—that of the quality of the leucocytes in pus. We have in Fig. 7 a bio-pyo-culture from a boil. The leucocytes here are quite ineffective. In Fig. 8 A we have a bio-pyo-culture from a clean wound which has been left to itself for 24 hours. The pus here is very far from ineffective, but it fails to sterilise itself, and so falls short of standard. In Fig. 8 B we have a bio-pyo-culture from the same kind of wound which had four hours before been carefully washed out with physiological salt solution. We have here a pus that sterilises itself.

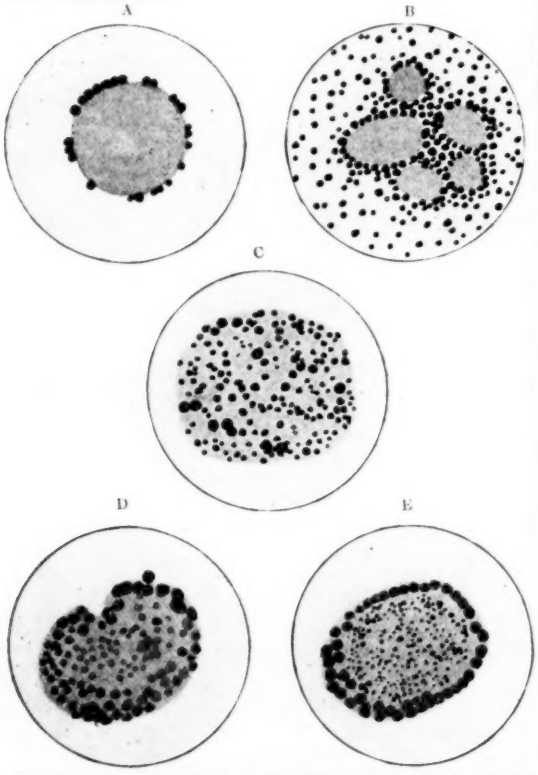


FIG. 5.—A, Pus from a clean wound spread out on a sterile agar surface under a cover-glass and incubated. Streptococcus colonies develop only in the narrow ring of serum beyond the edge of the pus. B, The same pus stirred up with serum but in other respects treated in exactly the same way. Streptococcus colonies develop in the serum everywhere round the pus. C, The same pus dried on to the cover-glass before it was imposed upon the agar. D, The same pus heated to 46° C. There are here less numerous colonies than in C and E. E, The same pus frozen and thawed.

A pus such as this has in point of fact a bactericidal power incomparably greater than manifests itself when we impose it upon a sterile agar surface. How large a surplus of bactericidal power it possesses is made manifest when we impose it upon an agar surface thickly sown with staphylococcus or streptococcus, or, probably, any other microbe. Fig. 9 will convey to the eye a conception of the magnitude of the bactericidal effect then exerted.

We thus see that the results obtained with leucocytes from a clean wound surface are precisely the same as those with leucocytes which emigrate from our blood-clots. In each case what is essential to the achievement of bactericidal effects is the employment of freshly emigrated leucocytes, the keeping of these alive and active, and the removal of the excess of serum which would carry the microbes out of reach.

It will be obvious that the problem of sterilising the actual wound surface must be soluble along these lines. That is part and parcel of the general problem of the treatment of the infected wound, and we shall deal with it in its place. First, however, let us see whether it is possible to sterilise a wound surface by an antiseptic applied directly, and by an antiseptic applied after washing with saline solution.

Effect of direct applications of an antiseptic to flat wound surfaces, and of applications preceded by thorough washing with physiological salt solution.—The results of these applications are brought before the eye in Fig. 10.

In A we have a bio-pyo-culture from a clean wound left to itself overnight. There are here only a few streptococcal colonies—in other words, only a few streptococci have here escaped destruction. In B and C we have cover-glass specimens taken and cultured in exactly the same way after the one half of the surface (B) had been washed with eusol and the other half (C) with physiological salt solution. What calls for notice is, first, that while we have in A only a few bacterial colonies, and a background of pus, we have in B and C very numerous colonies and a quite bare background. That teaches that the mechanical effect of washing is much more important than the chemical effect of the washing fluid. We wash away the leucocytes and leave behind the microbes; and these, now escaping destruction by the leucocytes, grow out into colonies. That the microbes on the wound-surface are after eusol just as numerous as after physiological salt solution is, no doubt, due to the antiseptic expending all its strength upon the overlying pus. The microbes which remain are presumably those which were hidden away under leucocytes. In D and E we have again cultures made by the same method from the wound surface after further treatment with eusol. In D—i.e., in the preparation made from the half of the wound which has been twice treated with eusol—sterilisation is, as we see, incomplete. On the other hand, in E, the preparation made from the half of the wound which was washed first with physiological salt solution and afterwards with eusol, we have complete sterilisation. In D the microbes were no doubt buried under coagulated albumin; in E the washing off of the albuminous discharges must have left the microbes without protection.

The experimental data just set out make it clear—and, indeed, it never could have been doubted—that it is possible to sterilise out of hand the superficies of a wound by the agency of antiseptics, provided that that surface has been washed perfectly clean from albuminous substances.

Practical application of the physiological and biological lessons we have learned to the treatment of wound infections.—It will be obvious to all who have not the blinkers of

tradition over their eyes that our treatment of wounds will be successful or unsuccessful according as it falls in with or disregards physiological and biological facts such as those we have been dealing with. And it is clear that whenever new facts of this kind are brought to light we are bound to review the whole of our treatment, and see whether any of our treatment runs counter to the facts we have learned, and whether each of these is turned to full account. Let us carry this out, asking ourselves in connexion with each successive phase of the wound what would be the proper treatment to follow. We may—though loth to waste time in discussing treatment which is obviously right and widely accepted—say first a word on the subject of early primary suture.

Early primary suture.—This procedure, recently taken by us over from the Belgians and French, stands on precisely the same footing as primary suture of wounds as carried out after ordinary surgical operations. In wounds which have received early surgical treatment—that is to say, in wounds

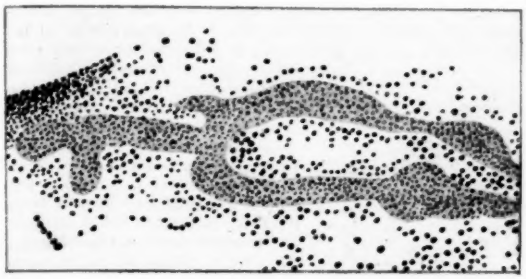


FIG. 7.—Bio-pyo-culture. Pus from a furuncle spread out on agar under a cover-glass and incubated. Innumerable staphylococcus colonies have developed in the pus and in the surrounding liquor puris.

which have been fully opened up and mechanically cleansed and resected—the conditions encountered are, one may say, identical with those in most civil operations. In both cases we are closing upon healthy tissues on which there is at most a minimal microbic implantation. And in both cases—except when we leave dead spaces and allow these to fill up with lymph, and have in these a streptococcus implantation—the body can very safely be trusted to deal with the few scattered microbes. The limitation here enunciated is one which every intelligent man, who had read the first column of the first experiment in this paper, would have anticipated.

From early primary suture we turn to the infected wound. There are two categories of infected wounds. The first is that of *foul wounds*. These will be (*a*) wounds which have never been opened up and cleansed and resected. With these may be grouped (*b*) wounds that have been sutured,

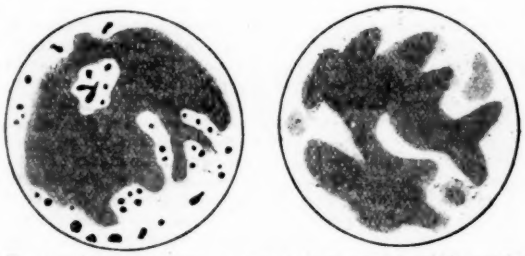


FIG. 8.—Bio-pyo-cultures: A, from a clean wound in which pus had collected over-night (a certain number of colonies are seen in and around the pus); B, from a clean wound which had been carefully washed out four hours before. The pus sterilises itself.

but have, by reason of imperfect cleansing and resection, afterwards broken down; and (*c*) wounds originally clean which have been long untended. The second category is that of *clean wounds*. These may be (*a*) unsutured wounds which have at the outset been properly cleansed and resected and have afterwards received due attention; and (*b*) wounds originally foul which have been cleansed. In the class of clean wounds we may perhaps also place properly resected

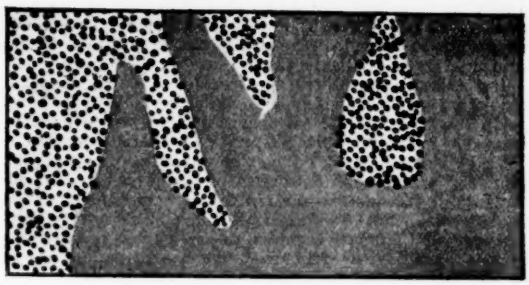


FIG. 9.—Pus spread out under a cover-glass upon an agar surface heavily implanted with staphylococcus. Here the agar surface which is covered by pus is sterile, while the portions of the surface which are not covered by pus have grown innumerable colonies.

sutured wounds with a streptococcus infection which have at the first sign of trouble been reopened.

All wounds which fall into the category of *foul wounds*—i.e., all those with unwholesome slough-covered walls, tryptic discharges, and a sero-saprophytic infection—ought to be treated in one way; all *clean wounds*—i.e., all those with wholesome walls, uncorrupted (i.e., antitryptic) discharges, and a purely serophytic infection, in another.

Treatment of foul wounds.—The first step here must be to clean off all the sloughs which, by continuously corrupting the exudation, favour the pullulation of every species of microbe in the wound. Then, having rendered our wound surface wholesome, we must get rid of all the sero-saprophytic bacteria. The first object can be achieved by tryptic digestion. When it has done its work the second can be achieved by an inpouring of wholesome lymph into the wound. If the wound is simply left to itself, Nature herself slowly takes in hand the digestive cleansing of the wound, making use of the trypsin set free from leucocytes which are broken down by microbic agency. But infinitely faster digestive cleansing can be obtained if we ourselves rapidly break down the leucocytes in the sloughs and in the pus. We can do so by soaking the slough-covered walls with 5 per cent.

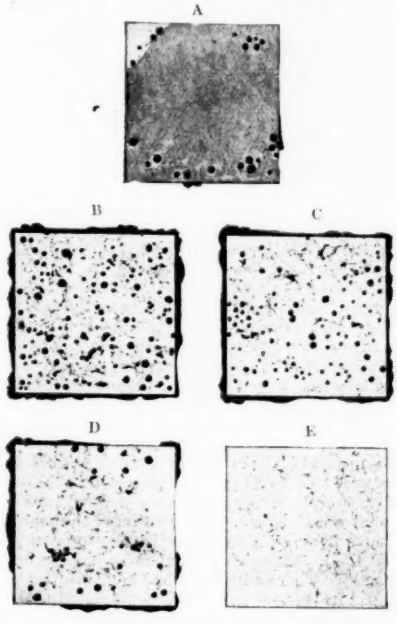


FIG. 10.—Bio-pyo-culture from clean wound and cultures made from it after washing with eusol and physiological salt solution. Description in text.

salt, afterwards permitting this to dilute itself by diffusing out into the exudation which the hypertonic salt draws into the wound cavity. Cleansing digestion completed, the hypertonic salt continues to act as a lymphagogue, and the

inpouring of antitryptic serum makes an end to the sero-saprophytic infection. The serophytic infection also is held in check so long as the concentration of salt in the discharges is maintained at a high level.[3]

Immediately related with the treatment of foul wounds is that of gas-gangrene infection of the tissues. Here we have, as in the foul wound: (*a*) necrotic tissues which must be removed—in this case by the knife; (*b*) altered lymph to be got rid of and be replaced by wholesome lymph; and (*c*) a saprophytic microbe (the bacillus of Welch) which can subsist only in degenerated—i.e., acidosed or trypsinised—blood fluids. The point of treatment which is every day overlooked, and therefore requires to be emphasised, relates to the necessity of replacing, when extirpation has to be left incomplete, the degenerated by wholesome lymph. The proper agency for doing this is a local lymphagogue such as is available in hypertonic salt solution. Neither in foul slough-covered wounds nor in gas-gangrene infection are antiseptics of any service whatever. For these cannot penetrate sloughs, or pockets of pus, or infected tissues; nor do they influence that corruption of the discharges which favours the pullulation of every species of microbe. Nor again can closure of the wound—a procedure which is, as we shall realise, applicable to clean wounds with serophytic infection—be resorted to where we have corrupted discharges and a sero-saprophytic infection.

Treatment of clean wounds.—We have seen that treatment in the case of foul wounds resolves itself into a cleansing digestion of the wound cavity, followed by an elimination of the sero-saprophytes by local auto-sero-therapy. In the case of clean wounds we have to complete the sterilisation by the destruction of the serophytic bacteria. We can, as we have seen, have recourse to the patient's leucocytes or to chemical antiseptics—i.e., to auto-leucocyto-therapy or chemotherapy.

By both methods sterilising effects can be obtained. But the difficulty is to obtain a sterilisation which shall be topographically complete. In our bio-pyo-cultures we had colonies of streptococcus coming up around the margin of the preparation whenever there was in the pus any trace of superfluous fluid. Exactly the same must happen on the face of the wound. There will often be lacunæ in the leucocytic covering, and in these there will be septic fluid. In the case where we go to work with an antiseptic we must, as we have seen, as a preliminary, wash off every albuminous element which might quench that antiseptic or prevent it penetrating. This—it is not necessary to insist—will often be difficult of attainment. If we have upon the face of our wound pits or sulci, or islands of inspissated pus, we shall inevitably, by reason of the incomplete washing, have unsterilised patches. From such foci, from the septic lacunæ in pus already spoken of, from bacterial niduses below the surface, and from the skin margin and the exterior, the sterilised tracts of the wound will continually be subject to reinvasion. From this we see that that method of sterilisation will be the method of choice which, leaving the fewest septic foci, most efficiently protects the sterilised tracts against reinfection.

In relation to this it is evident that a tract which has been washed quite clear of leucocytes, and then sterilised by antiseptics, is a tract left quite without protection against bacterial invasion. As soon as ever a drop of fluid from a septic focus reaches it, infection will be re-started, and the sterile area will remain in such unprotected condition until, sooner or later—that will depend upon the antiseptic—the leucocytic guard returns. Quite different are the conditions upon a clean wound surface which is being sterilised by leucocytic agency. Pus from such a surface possesses—we saw this in our experiments—a quite astonishing phylactic power. With that the superiority of sterilisation by leucocytes over sterilisation by antiseptics is, as it seems to us, quite settled. But it is of interest and importance to inquire how long the protection afforded by leucocytes will last. The data of a typical experiment are brought before the eye in Fig. 11.

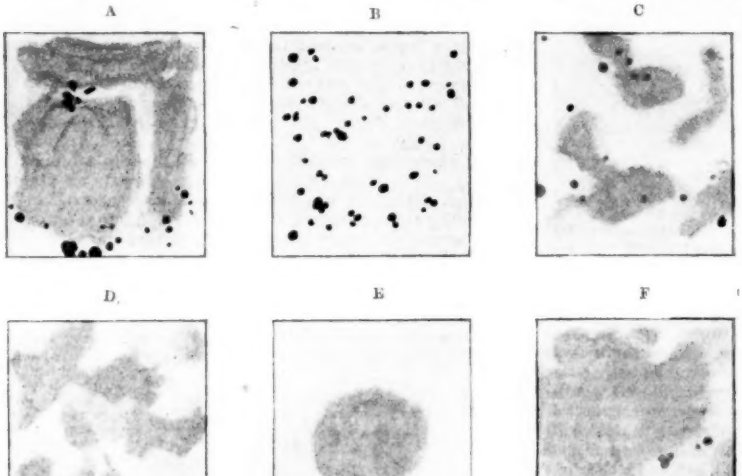


FIG. 11.—The description will be found in the text.

We have here a series of bio-pyo-cultures from a clean wound. A is a specimen taken from the wound after it had been left to itself for a night. A few colonies of streptococcus are in evidence. They suffice to show that this pus can no longer give effective protection. In B we have an impression-preparation of the wound taken immediately after washing with physiological salt solution and implanted on agar. It will be seen that the cultural result is exactly the same as in a similar washing experiment already figured (Fig. 10). In C, D, and E, we have bio-pyo-cultures taken respectively 2 4, and 8 hours after washing. The first of these is almost and the other two are quite sterile. And finally we have in F a bio-pyo-culture taken the next morning. Here the original conditions have returned—that is to say, we have again a pus which can no longer give effective protection.

Question as to whether and in what respects the closure of the wound furnishes more favourable conditions for sterilisation.—We have learned in our experiments conducted with blood the conditions which are requisite for sterilisation by leucocytic agency. We have seen that we must employ freshly emigrated leucocytes, employ them if possible in serried masses, that we must keep them in good condition, provide them with ready access to the microbes, and must, when combating serophytic microbes, drain off every drop of superfluous serum so as to prevent proliferation out of reach of the phagocytes. And in our experiments conducted with pus there has been brought out that while our bio-pyo-cultures are not unfrequently, our necro-pyo-cultures are only very rarely sterile. That teaches that the leucocytes from a clean wound surface are competent to do much more effective sterilising work than they are actually doing in the open wound. It follows as a corollary that if conditions more like those which our experiments have shown to be requisite can be obtained by suturing, we shall by suture assist sterilisation.

Let us therefore ask ourselves in what way suturing would change the conditions in the wound. It will, of course, keep off external infection. This is not worth spending any words on.

Let us see what we do for the leucocytes. By bringing together the two faces of our wound we double the leucocytic forces available at any point, filling in the lacunæ

[3] To this point we shall recur when we come to deal with the question of a phylactic dressing for use where the wound cannot be at the time surgically cleansed and resected.

arising from irregular distribution of the leucocytes, and dispersing the serum which has collected in those lacunæ. Further, we protect the leucocytes from desiccation, and by the fact that we dispose them between two apposed surfaces we enable them to move about more freely and to congregate to infected points. In illustration of this we subjoin Fig. 12. Here a bio-pyo-culture was made by disposing

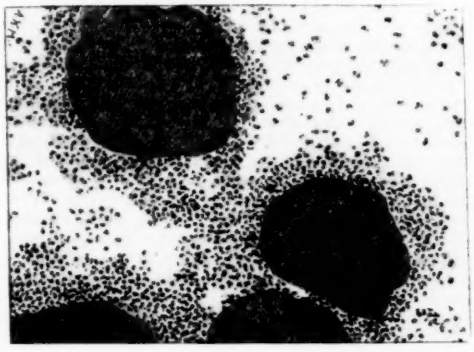


FIG. 12.—Leucocytes of pus aggregating themselves in dense rings round colonies of staphylococcus.

pus in a thin layer between an agar surface and a cover-glass. The prominent objects in the illustration are colonies of staphylococcus encircled by leucocytes. These, of course, are leucocytes which have rallied to the focus of infection.

But when we suture the wound we affect also elements other than the leucocytes. In particular we influence the lymph exudation. If our operative procedure is really successful we give effective support to the walls, and, by the pressure thus brought to bear, restrict the exudation. If, on the other hand, we leave behind in the wound hollow spaces, then suture simply confines the fluid. And then if streptococci find access to that fluid all the good we have done is undone. For the streptococcus is provided with the means of multiplying out of reach of the phagocytes.

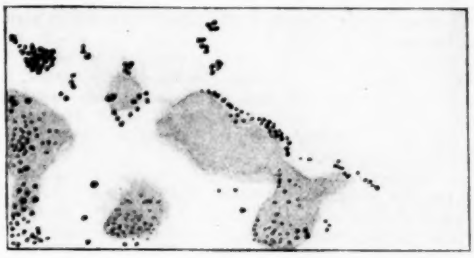
Question of policy as between suturing the wound and leaving it open, and method of pursuing the sterilising procedures when the wound is left open.—The question of policy is here that of balancing the advantages of closing the wound, bound up as these are with the risk of occasional failure, against the disadvantage of leaving the wound open. We have seen that if hollow spaces are left and these fill up and become infected the wound will have to be reopened. There will be two ways of reducing this risk. Precautions can be taken against leaving dead spaces. This is a question of surgical technique and also a question of choosing for the operation a time when some of the hollows have filled up, and the tissues are not yet too much indurated by scar formation. And again the microbe infection can be restricted. This is a question of making our sterilising operations as effective as is possible in an open wound. The important point to emphasise here is that to promote exudation—as, for instance, by the application of hypertonic saline solution—is to promote the serophytic infection; to leave the discharges to take care of themselves under impermeable protective is generally to leave the infection unaltered; and that to remove all superfluous fluid, while keeping the wound surface moist, is the way to diminish the infection.

We bring before the reader's eyes in Fig. 13 the result of a comparative experiment undertaken upon a clean wound. In A is depicted a bio-pyo-culture made from the wound merely covered in with impervious protective. We note that a certain number of colonies of streptococcus have come up. That was to be expected from a procedure which confines the serum and so provides a culture medium for the streptococcus. In B we have a bio-pyo-culture made from the same wound after it had been left for 24 hours under a dressing of dry gauze. Our culture is here almost sterile. In C we have another bio-pyo-culture from the same wound after return to simple protective covering. Here, again, we have a growth of streptococcus.

We thus see that by merely absorbing the excess of serum we can carry the sterilisation of the wound up to the point where we get a sterile bio-pyo-culture.

Question as to whether it is possible to obtain a pansement d'attente *—i.e., a phylactic dressing for use where the wound cannot at the time be surgically cleansed and resected.*—Among the problems of treatment there is one which up to this has been omitted from consideration. This is the question as to whether anything can be done to restrain the bacterial infection in the case of patients brought in off the field who have large open wounds and cannot for the time being receive full operative attention. A word may be devoted to this. We believe that hypertonic salt solution fulfils all the requirements of a phylactic dressing and pansement d'attente. In the first place by inhibiting leucocytic emigration, it prevents that corruption of the discharges which prepares the

A



B

C

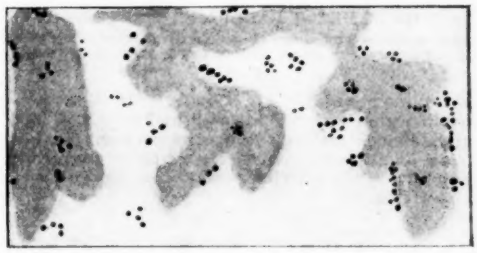


FIG. 13.—The description will be found in the text.

way for sero-saprophytic infections, and above all for gas-gangrene infection. Again hypertonic saline solution, by virtue of its lymphagogic properties, prevents that drying up of the wound and shutting down of the surface capillary circulation which must, more than any other factor, produce sloughing of the wound surface. And, lastly, by direct action of the salt the hypertonic saline solution will, so long as it remains sufficiently concentrated, inhibit the growth of serophytic microbes in the exudation. All that would be necessary would be to cover over the whole wound surface with several layers of gauze soaked in 5 per cent. salt (i.e., saturated salt solution seven times diluted); to back this with a plugging of gauze steeped in saturated salt solution, and then to cover with a layer of impervious protective.

What we have to unlearn.—It is a very penetrating observation—made by Professor William James—that we never fully

grasp the import of any true statement until the opposite untrue statement is clearly set over against it in our minds. To this end, we may now, in concluding, set over against what has been ascertained to be true what is erroneous.

1. It has been erroneously inculcated that every wound should be sterilised before closure; and that, therefore, *primary suture* should be avoided and *secondary suture* undertaken only after a course of antiseptics. There is now no question, with respect to primary suture, that the wound taken after early surgical cleansing and resection is as good as sterile; and, with regard to *secondary suture*, undertaken with a wound in good condition and a purely serophytic infection, that such operative procedure, provided it leaves behind no infected dead spaces, directly contributes to sterilisation.

2. It has been taught that we should judge of the fitness of the wound for closure by necro-pyo-cultures and direct microscopic examination of the pus. We have learned that it would be infinitely more reasonable to base our judgments upon the results of bio-pyo-culture.

3. It has been taught that suture cannot be successful in a wound containing a hæmolytic *Streptococcus pyogenes*. We have seen that leucocytes can, given proper conditions, successfully combat this, and of course all other streptococci; and that these conditions can be realised in connexion with the suture of wounds.

4. It has been taught that for the removal of sloughs from foul wounds chemical solvents are required. We have learned that sloughs can be removed by tryptic ferment set free from disintegrated leucocytes, and that the liberation of this ferment can be greatly accelerated by breaking down the leucocytes in the discharges with hypertonic saline solution.

5. Lastly, it has been taught in connexion with antiseptics that sterilisation is obtainable only by continuous or very frequently repeated application. We have learned that there is nothing to prevent any part of a wound surface which has been washed quite clear of albuminous matter being sterilised by a single application of antiseptics.

In concluding we wish to express to Sergeant A. K. Maxwell, our illustrator, our thanks for his care and skill.

NOTE ON

A METHOD OF DEALING WITH THE DIVIDED URETERS

WHEN IMPLANTATION INTO THE BLADDER IS IMPOSSIBLE, OR WHEN THAT VISCUS IS ABSENT.

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ALTHOUGH probably the gynæcologist is most often concerned in dealing with intentionally, and sometimes unintentionally, divided ureters, the general surgeon, too, is often confronted with problems concerning these ducts which in the past have either been impossible of solution or have been imperfectly solved.

Objects of Method.

In a very large proportion of all cases in which the ureter is accidentally divided, or in which a small distal portion is deliberately excised during a radical operation for cancer of the cervix uteri, implantation into the bladder is easily and successfully accomplished if a suitable technique be employed; and such procedures have no relation to the method I am about to describe. This method takes into account a very much more serious problem: it concerns the fate of the ureters which cannot be implanted into the bladder, either because they have been divided too far away or because there is no bladder in which to implant them—that is to say, there is a condition of ectopia vesicæ, or removal of the bladder is indicated in the treatment of neoplasms.

Hitherto, of course, in these difficult circumstances the ureters have been implanted into the intestinal canal; but I think it will be generally conceded by all clinicians and pathologists that to lead the ureters into the bowel which is swarming with bacteria is the very essence of unscientific surgery. If a patient here and there should escape fatal renal sepsis, no one knows how this miracle happens. The life of most patients in these circumstances is short and stormy.

I have therefore attempted to devise a safer procedure than those hitherto employed, primarily with the object of extending the ratio of operability in cases of carcinoma cervicis uteri.

It is well known that cancer of the cervix is a very local disease—that is to say, metastases are rare—and the lethal effects are for the most part produced locally and chiefly from involvement of the ureters. It is, too, a disappointing fact that a large proportion of all cases are in an advanced stage before they present themselves for treatment. I have seen only two early cases of cancer of the cervix in the last 12 months and both refused treatment because they had so few symptoms. This disheartening state of affairs, and the fact that during the last few years I have obtained good results in what would usually be considered inoperable cases of cancer of the cervix by wide removal of the pelvic organs and tissues and the insertion of radium in the cavity so created, have led me to contemplate the possibility of deliberately dividing the ureters—which may be dilated from invasion by the malignant growth, or simply from constriction—at the pelvic brim, in order more easily and extensively to clear the pelvis and excise the base of the bladder where it is in relation with the supravaginal cervix, and is therefore often involved in the cancerous lesion.

Technique.

I shall now describe the technique of the various procedures that go to make up the method of treatment in advanced—that, is hitherto inoperable—cases of cancer of the cervix. The details of the method should, of course, be varied to suit the peculiarities of other lesions such as ectopia vesicæ. Naturally in such a complicated method one only attains perfection after repeated attempts; and it is probable that in many details further improvements will be effected. There are two, or possibly three, stages in the method.

At the first operation laparotomy is performed through a central subumbilical incision. The anterior branch of the internal iliac artery is tied on either side to diminish the blood supply to the pelvic organs, and so to facilitate the subsequent procedures. Next, a loop of the lower ileum, about 18 inches in length, with its mesentery, is isolated, and an anastomosis is made to carry on the function of the intestinal tract from which the loop has been excised. The apex of the isolated piece of bowel is now superficially attached to the fundus of the bladder, and the two ends of the loop are brought out through stab-wounds in the iliac region on either side and fixed in position.

I need not go into all the obvious details which should be taken to avoid contamination.

The central incision in the parietes is then closed. The dressings over the open ends of bowel should be changed frequently, as there is a good deal of discharge, especially from the distal end, for a few days. When the attachments at these orifices are quite firm swabs are taken from the interior of the bowel with precautions against superficial contamination. Subsequently the loop of bowel is washed out twice daily with a 1-30 solution of Milton fluid. Within ten days the bowel is sterile or practically so.

The figures from a case investigated by Professor E. E. Glynn are interesting. Two swabs were taken from each end of bowel at intervals of a few days and examined bacteriologically with the following results:—

June 21st: Before sterilisation of the bowel was commenced.

No. of colonies grown upon nasgar after 24 hours' incubation at 37° C.

1. Right side, first swab	25,692
2. Right side, second swab	19,248
3. Left side, first swab	15,960
4. Left side, second swab	10,080

The organisms grown were *B. Coli*, *Gram-positive staphylococci*, and *Gram-positive diplococci*.

June 25th: After irrigation of the loop of bowel for four days.

No. of colonies grown upon nasgar after 48 hours' incubation at 37° C.

1. Right side, first swab (*B. coli* and *Staphylococcus albus*)	396
2. Right side, second swab (*Staphylococcus albus* only)	12
3. Left side, first swab (*B. coli* and *Gram-positive bacillus*, resembling *megaterium*)	2,592
4. Left side, second swab (*B. coli* and *Gram-positive bacillus*, resembling *megaterium*)	720

June 29th: After irrigation of the loop of bowel for eight days.

No. of colonies grown upon nasgar after 48 hours' incubation at 37° C.

1.	Right side, first swab. Cultures sterile	0
2.	Right side, second swab (*Staphylococcus albus* only) ...	24
3.	Left side, first swab (*Staphylococcus albus* only)	6
4.	Left side, second swab (*B. coli* and *Gram-positive bacillus, resembling megaterium*)*	1,728

* Probably contamination.

The irrigation is continued for a few days longer, at the end of which time, if all the cultures are negative, the next step is undertaken.

At this second operation a self-retaining catheter is first placed in the bladder, and, after the abdomen has been reopened, the apex of the loop of bowel is detached from the fundus of the bladder. The ureters in turn are divided at the pelvic brim and are implanted into the isolated loop in the manner described by Stiles. The whole pelvis is then cleared; the genitalia with the upper part of the vagina, the parametrial glands and connective tissue, together with a large diamond-shaped piece of the base of the bladder—the largest area of which is situated over the front of the cervix—are removed. The aperture in the bladder is closed with two layers of continuous sutures.

Owing to the fact that the anterior divisions of the internal iliac arteries have been tied a short while previously at the first operation and that the pelvic portions of the ureters are removed without dissection, the evacuation of the pelvis and the repair of the bladder should not occupy a longer time than half an hour. The apex of the isolated loop of bowel in which the ureters have been implanted is now anastomosed with the fundus of the bladder. The self-retaining catheter should be utilised for a week to keep the bladder empty. The operation is completed by the closure of the abdominal wound and of the open ends of the isolated loop of intestine, unless it be judged advisable to keep one or both ends open for the purposes of lavage. In this case the openings are closed subsequently at a third operation.

Remarks.

The feature of this procedure is not, as some might suppose, its mechanical aspect; it is, rather, the far more important scientific fact that it is possible to sterilise a loop of isolated bowel in a few days. I do not believe I am too optimistic in thinking that, if advantage is taken of the opportunities this possibility offers, the surgery of neoplasms of the bladder, and of ectopia vesicæ, will receive great impetus, for there is no doubt that in respect of these conditions surgery has been hung up, more or less completely.

There are many interesting questions on which I have not touched, but there is only one to which I need refer. How far can this loop of intestine replace the bladder? I think very well. There does not appear to be any absorption of deleterious substances; at least there was no evidence in my cases of such an occurrence. Further, it was observed that when fluid was poured in through a catheter at one end of the isolated loop it was not evacuated at the other until a considerable quantity had been introduced; then the muscle wall of the bowel contracted and drove out the contained fluid like a fountain, as many have had the opportunity of witnessing.

In some cases, in which excision of the bladder might be indicated, the urethra and neighbouring bladder wall could be conserved, and the bowel used to replace the excised body of the bladder. In the absence of a functional urethra, as is the case in ectopia vesicæ, an opening in the bowel through the rectus muscle, after the manner of a gastrostomy opening, might give satisfactory results.

However, the main point I want to emphasise is that a loop of bowel in the living human subject can quickly be rendered sterile and kept sterile. The surgical developments that must follow this knowledge are obvious and manifold.

Mr. Louis Albert Dunn, M.S. Lond., F.R.C.S. Eng., senior surgeon to Guy's Hospital, died there on June 7th in his sixtieth year. Mr. Dunn was joint lecturer on surgery at Guy's Medical School, and late examiner in surgery at the Universities of Cambridge and Leeds.

REPORT OF MEDICAL OFFICER OF HEALTH FOR THE COUNTY OF ABERDEEN.—In his annual report for the year ending May, 1917, Dr. J. P. Watt, medical officer of health for the county of Aberdeen, states that the total number of cases of tuberculosis notified during the year was 245, of which 177 were pulmonary, and 68 other forms of tuberculosis. Of 74 patients who were discharged from sanatoria, 30 were working full time. The county council now own 59 shelters. These shelters have been used by 75 patients, and of these 26 have occupied shelters for over two years, 20 from one to two years, 13 from six months to a year, and 15 under six months. A considerable amount of work has been done during the year in improving the houses of the working classes. In the parish of New Deer a woman died at the age of 101 years.

WARFARE INJURIES OF THE LARYNX.[1]

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IN the following paper I have thought it wise to confine my remarks to the description of gunshot wounds of the larynx, these cases forming a large and important group in military surgery.

To obtain the necessary information investigations have been carried out on wide lines and 245 patients have been discovered, including:—

Group I.—108 cases, particulars of which have been obtained partly by personal observations (24) and partly as the result of circulating a letter to 80 laryngologists in Great Britain and France, notes having been received from Brown Kelly, 18; Howarth, 6; Rose, 4; Tilley, 4; E. D. D. Davies, 4; Whale, 4; Milligan, 3; Mollison, 3; Smurthwaite, 3; Abercrombie, StClair Thomson, Seymour Jones, Hastings, Wilkinson, Graham, O'Malley, Wylie, and West, 2 each; MacGregor, Westmacott, Wright, Peters, Buckland Jones, Dundas Grant, French, Hill, Hutchinson, Low, Bain, Whillis, Faulder, Tod, Stewart, and Woods, 1 each.

Group II.—110 cases the notes of which were obtained by examining the records of 1873 patients suffering from gunshot wounds of the neck and treated in home hospitals during 1914 and 1915. These notes were largely valueless because of the absence of accurate details, but the investigations brought out the relative frequency of injuries of the larynx in neck wounds (1 in 17 cases). Moure states that in the Crimean War the proportion was 1 in 460. Delorme gives 3 per cent. in the present war.

Group III.—Twenty-three post-mortem specimens obtained from the Royal College of Surgeons of England, and exhibited to-day. Also four fatal cases, notes of which were supplied by Captain Whale.

Although these groups only include a fair proportion of the larynx wounds received during this war, the numbers are sufficient to make it possible to formulate a good general impression of the whole subject. It has been noted that wounds of the larynx are infinitely rarer than injuries to the jaws; that the entry wound may be situated in any part of the neck (jaw and chest rare) and is generally smaller than the exit injury; that the commonest place of entry is the anterior triangle of the neck, especially the region of the thyroid cartilage; that transverse wounds (61) are more common than oblique (24); that entry wounds in the middle line in front are very rare (8) and never occur posteriorly, doubtless because the spine is always involved with fatal results; that the track of the missile may be horizontal, from above downwards or occasionally from below upwards; that the lower jaw may be struck first; that injuries of the larynx between the level of the vocal cords and the cricoid are the most serious; that tracheal wounds are rare (12); that the pharynx or œsophagus is often included; that extra-laryngeal wounds are very common on account of the mobility of the air-passages, the missile often passing obliquely by the side of the thyroid cartilage or transversely behind the larynx without penetrating into its cavity.

Nature of Wounds.

All varieties have been met with from simple punctures to highly lacerated forms, perforating being far more common than penetrating. Out of 108 cases the wounds were stated to have been caused by bullets in 58, shrapnel in 20, shell fragments in 16, bayonet in 1, not stated in 13 cases. The course was left to right in 26, right to left in 18, right only in 13, left only in 12, middle line 5. Although no evidence has been obtained from these notes that one form of missile is more destructive than any other, the high proportion of bullet wounds suggests that these cause lighter injuries than ragged fragments of shell. The passage through the neck of bullets passing in intimate relation to vital structures without causing serious damage must be emphasised. Many instances could be cited, such as two cases where bullets entered the neck in the middle line in front of the thyroid cartilage and emerged posteriorly to the left of the dorsal vertebræ at the level of the spines of the scapulæ, in the notes of which it was stated that these bullets took an extraordinary course, and apparently no important injuries were sustained.

In a third case a missile is stated to have passed through the trachea and œsophagus and lodged in the apex of the right lung, causing aphonia, dysphagia, and emphysema,

[1] Abstract of a paper read before the Royal Society of Medicine, Section of Laryngology, on June 7th, 1918.

the patient, however, making an uninterrupted recovery. The healing of wounds in the larynx is, generally speaking, rapid and satisfactory—the fact that a considerable number afterwards develop cheloid or scar-tissue approaching to this condition raises the important question of the nature of the infection.

Symptoms.

In many of the cases examined the classical symptoms were remarkable by their absence. Although missiles had undoubtedly perforated the air-passages, the patients declared that very little trouble had been experienced. Cough, dyspnœa, blood-spitting, dysphagia, and, later, bruising, œdema, or inflammation may never occur. In general, however, the voice is immediately lost. Cough supervenes for a time. Hæmoptysis (25 cases) is common and may be severe, statements being made by the patients that they had lost "at least two quarts of blood" after being wounded. Severe bleeding may be due to injury of the carotid arteries (3) or internal jugular vein (2). It may also originate from the mucosa of the air-passages without injury to any large vessel. Hæmorrhage may continue for a few minutes or for long periods, such as two to seven days. Recurrent and secondary hæmorrhages are rare at the base. Dysphagia (29 cases) is common, but generally of a transient nature for a day or two, and is caused more often by general soreness of the tissues than by obstructive inflammation in the gullet. Even after severe wounds involving the food passages there may be no dysphagia. Thus, a bullet which passed through the pharynx behind the larynx is said to have caused no dyspnœa, dysphagia, or hæmoptysis. Dyspnœa (28 cases, tracheotomy in 18) seems very variable, and is often absent even in severe wounds. It may, however, develop unexpectedly after apparently simple injuries and at almost any period.

Injuries.

Laryngeal.—To estimate exactly the damage sustained by the framework of the larynx is often a very difficult matter, and apparently slight injury may afterwards prove to be serious. A methodical examination is necessary, including inspections, palpation, X rays, and, in some cases, direct laryngoscopy.

The epiglottis (3 cases) may be shot away, partially removed, detached from its origin, or simply perforated. The hyoid bone (4 cases) may also be fractured. The thyroid cartilage (10 cases) is often involved. In most cases that reach this country the missile has perforated the cartilage without causing serious injury, its course having been roughly transverse and generally through the anterior parts of the larynx. Wounds through the posterior regions involving the arytenoids and pharynx are far more serious. With shell fragments penetrating wounds are also frequent, and the foreign body may cause an abscess and be coughed up later. Definite fractures of the cartilage were observed in 10 cases, simple and comminuted forms being equally common. Post-mortem specimens show every variety of fractures, including those in which the cartilages are broken into many fragments. Instances have been seen in France where the entire larynx has been shot away, but more often the anterior angle of the thyroid cartilage is removed.

The cricoid may also be fractured or perforated, serious complications supervening. One or other arytenoid is often involved, and fixation of the crico-arytenoid joint may result. Considerable confusion obviously exists between fixation of this joint and cord-paralysis, and in some instances it may be difficult to decide which is present. In most cases of paralysis the arytenoid is drawn forward on the affected side, a condition which has not been seen with simple fixation.

In all wounds of the cartilages perichondritis supervenes to some extent and healing is thereby delayed. In the more favourable cases the inflammation rapidly subsides and the patient may be fit for duty in 10 to 14 days. Severe perichondritis is much to be feared and causes results which recover but slowly.

Soft parts.—The vocal cords are frequently injured, especially in their anterior parts, where scarring generally leads to the formation of a web. Slight damage is quickly repaired, but extensive wounds result in a condition which is very similar to that seen after removal of cancer by thyrotomy.

The ventricular bands, if wounded, may become so swollen that the lumen of the larynx between them is reduced to a slit, this form of stenosis being frequently persistent. *Hæmatoma* (2 cases) rarely causes obstruction, although fairly large effusions are occasionally observed. Granulomata (7 cases) appear after acute inflammation has subsided, and are generally situated on the cords or below the larynx around the tracheotomy tube. *Abscess* may develop externally or within the larynx, especially when a foreign body is retained. If the abscess bursts internally the foreign body is often coughed up (7 cases), after which the inflammation may rapidly subside. Peritracheal and peri-œsophageal abscesses are not uncommon, and the necessity for tracheotomy must always be borne in mind. *Fistulæ* may result from wounds or abscesses, but in most instances, rapidly close. Wylie reports an instance of a persistent fistula which he explored and found to contain a part of a coat collar, which, being soft, had not been detected by probing. As usual, the fistula closed after its removal.

Nerves.—The frequency of paralysis of the vocal cords after gunshot wounds of the neck is very remarkable. Appearing immediately after the wound, it is generally abductor in type in the early stages. Left abductor paralysis was noted in 22 cases, the right cord being affected in 14, and both cords in 2, giving a total of 38 out of 108 cases. In several instances the paralysis disappeared after a time, in others it was followed by total paralysis. It has not been found possible to determine the frequency of these changes because the notes are not sufficiently detailed and much confusion exists between fixation in the middle line, ankylosis of the arytenoid joint, and "cadaveric position of the cord."

Paralysis might be caused by division of the recurrent laryngeal nerve[2] by its involvement in scar tissue, by shock by toxæmia, or might be idiopathic. It is important to determine which of the above is responsible. So far no instance of divided nerve has been reported. The paralysis seems to supervene too early for scar tissue or toxæmia to have influenced the nerves. There can be little doubt that shock is chiefly responsible.

Stenosis.—Inflammatory stenosis (44 cases) is common in early stages, and may be due to general inflammation of the mucosa, to œdema, to abscess, or to hæmatoma.

It often happens that the ventricular bands are so swollen that they meet in the middle line and occlude the vocal cords, especially when perichondritis is also present or when crico-tracheotomy has been performed. A common form is webbing of the anterior commissure (10 cases) which is not so serious as the annular and tubular varieties (11 cases). In the latter the scar tissue may involve a considerable length of the air-passage, including the subglottic space. The scar is remarkably tough and cuts more like gristle than fibrous tissue. In many instances the lumen of the larynx is almost obliterated. Subglottic stenosis (9 cases) is equally difficult to overcome. Tracheal (2 cases) and paralytic strictures (3 cases) are rarer.

Dilated glottis.—Brown Kelly reports an interesting case resulting in dilated glottis. A slight degree of bowing of the vocal cords is common.

Injuries to other parts.—Many laryngeal injuries are complicated by simple perforating wounds of the *pharynx*, resulting in temporary fistulæ (6 cases). Severe wounds are rarely seen in England.

The evidence of surgeons at the front demonstrates that severe injury of the pharynx is a serious complication and often produces a fatal result. The cervical portion of the *œsophagus* is often perforated, and in some cases temporary fistulæ result (10 cases). In most instances dysphagia is of short duration, and the absence of complications is remarkable. Cellulitis of the neck, periœsophageal abscess, and cervical sinuses may supervene, but are rarely fatal. Temporary dilatation of the gullet has been necessary in several cases, but only one instance of a permanent stenosis has been discovered. Foreign bodies may traverse the *trachea* without causing serious damage, though in most instances a tracheal fistula remains for a time. Severe wounds are likely to be fatal unless early treatment can be afforded. Definite injury to the *carotid arteries* is reported in three cases and to the internal jugular vein only twice. A transverse section of the neck shows that the large vessels lie entirely behind the larynx, and are so deeply situated that they generally escape in these wounds. Reference has already been made to the remarkable immunity of the vital structures of the neck, but it is fair to assume that most of the wounds of the large vessels end fatally.

Complications are always to be feared in the early stages, even after apparently simple wounds of the air-passages, as they frequently terminate fatally (see causes of death). Chronic conditions, such as bronchitis, are only mentioned in five cases, and all late complications appear to be rare. One patient developed tetanus on the tenth day but recovered.

Treatment.

The treatment of wounds of the larynx is a difficult matter and great ingenuity is needed in the management of many of the cases. If centres were provided for dealing with these patients they would enable the surgeons to improve their technique. In the early stages the first essential is to prevent the patient from choking. In all doubtful cases tracheotomy should be performed. Nearly one-third of the cases reported required a tube at some period (tracheotomy, 28 cases; laryngotomy, 4 cases). Crico-tracheotomy is an easy operation, but inadvisable because the larynx is narrower than the trachea; the tube is not well tolerated. Swelling of the mucosa results, pressure ulcers, necrosis of the cricoid, and granulations supervene; "retained tube" is more common than with other operations. "High" tracheotomy through the upper two or three rings is less dangerous than a "low" operation. As Kocher states: "The danger of fatal complications is much greater with inferior tracheotomy." The latter should be reserved for those cases where,

[2] Vagus paralysis and central lesions are very rare.

after careful consideration, it is decided that a permanent tube shall be worn. The treatment of the wound is also very important. To prevent extension of sepsis it may be necessary to open up the wound and provide free drainage; excision of any lacerated tissues is better. The suturing together of divided air- or food-passages must be carried out on the well-known lines prescribed for cut-throat. To save life partial or total extirpation of a larynx which has been shattered might be necessary. The evidence shows that a gangrenous condition of the tissues often results in death.

Foreign bodies should be removed in all possible cases after careful localisation with radiography.

The later treatment should only be carried out by laryngologists. The question of warmth, moisture, inhalations, management of the tracheotomy tube, prevention of dyspnœa, and the feeding are all highly important to recovery.

Stenosis.—Tracheotomy may be necessary in any form of stenosis. It is important to recognise that inflammatory stenosis may disappear entirely. In several patients examined the earlier notes (made by well-known laryngologists) stated that permanent tubes would be necessary unless laryngostomies were performed. A year later they were breathing normally without tubes. When the patient has recovered from his tracheotomy the treatment of his stenosis must be considered.

To lay down any general line of treatment is impossible. One must devise a method which will not only dilate the stricture, but, if possible, also cause absorption of the scar tissue. Simple dilatation is only practical in a few cases. Removal of scars is useless unless intubation is employed for months.

Moure and other Continental surgeons are strongly in favour of laryngostomy ("le traitement moderne, le traitement de choix"), and, shortly, his method consists in splitting the larynx and trachea, resecting all scar tissue so that the cavity of the larynx is dilated and canalised. Intubation must be practised for twelve to eighteen months, after which the canula can generally be removed and a plastic operation performed. The voice results are surprisingly good and, although rough, phonation is strong and resonant, similar to that obtained after removal of cancers by thyrotomy. Moreover, the patients are cured and can breathe through the natural passages.

In the hands of Professor Moure laryngo-tracheotomy doubtless gives good results, but it is not an operation to be undertaken lightly by laryngologists. I agree that in every case of "retained tube" the question of curing the stenosis should be carefully considered, and it still remains to be proved that this cannot be effected equally well by simpler methods.

To maintain the lumen of the air-passage it is necessary to persevere with dilatation by bougies, intubation tubes, or upward-turning tracheotomy tubes. The treatment must be commenced very quietly, as the tissues are often intolerant when inflamed. Small-sized stenosis canulæ are generally effective, and should not be changed too often. If necessary a general anæsthetic should be given for changing the plug at the beginning of the course. After a time a larger canula can nearly always be inserted without damage to the stricture, and if the surgeon and the patient are sufficiently tolerant many cases of stenosis can be cured. The patient should wear a tube corked for months before it is finally removed.

Mortality.

The mortality from wounds of the larynx is undoubtedly high, and depends on a number of factors. In the firing line extensive wounds may be caused by large shell fragments, which destroy the larynx and are rapidly fatal. At the base hospitals in France many deaths occur in the first week after injuries. This is proved by the specimens in the Royal College of Surgeons of England and by an examination of the notes at the Statistical Department of the British Museum. Thus, in 512 cases of neck wounds, mostly treated in France, there were 31 deaths, 2 of which had received injuries to the larynx. On the other hand, 1873 neck wounds were treated in English hospitals during the same period, with only 17 deaths. Of these, 110 received injuries to the larynx and only 1 case ended fatally. Again, in the group of 108 patients which have been described in detail above there were only 5 deaths, which gives a mortality, after the first week, of less than 5 per cent. The above figures are important in proving that the mortality is much greater at the front than at the base.

Causes of death.—In the 1873 plus 512 cases of neck wounds mentioned above the causes of death were given as follows: Fracture of spine and paralysis 16, hæmorrhage 7, aneurysm 2, broncho-pneumonia 2, gangrene 2, pneumo-hæmothorax 1, dyspnœa and heart failure 1, septicæmia 1, mediastinitis 1, no cause stated 14. Total 47.

In the 32 cases of fatal larynx wounds, deaths were due to sepsis of neck, mediastinum, and broncho-pneumonia in 9, hæmorrhage in 5, pneumonia in 3, meningitis in 2, mediastinitis, hæmothorax, pericarditis, œdema of larynx, tracheotomy and heart failure, cellulitis of neck, septicæmia, and cerebral embolus in 1 case each (5 not stated). In 17 of the above cases death occurred within seven days (6 within 24 hours), and it would appear that the commonest causes of death in the early stages were hæmorrhage and dyspnœa, whereas later on inflammation of the neck extending to chest and involving the lungs is most important.

After-results.

In two-thirds of the gunshot injuries of the larynx that survive for more than a week recovery is complete, and no ill-effects are produced beyond alteration of the voice.

The voice figures obtained in 108 cases are: normal 17, strong hoarse 24, weak hoarse 12, falsetto 1, whisper 15, dumb 1, not stated 38. Although a perfectly normal phonation may be obtained after undoubted injury to the larynx it is common to find that the patient complains that his voice is easily tired. Examination of many of these cases, and of others suffering from hoarseness, has shown that faulty voice production is often responsible. Officers, as a rule, obtain a useful voice more quickly than men. But the result is variable after the same type of injury. Thus in 10 cases of webbing of the anterior commissure the voice was reported strong hoarse in 3, weak hoarse in 3, falsetto in 1, whisper in 2, and dumb in 1. A word may be added about the mentality of these patients. In general, as soon as the wound has healed there appears to be no anxiety about the future even if a tracheotomy tube is retained. A small proportion of the patients do suffer from mental depression, and drift into a condition which is hopeless and helpless. They complain of breathlessness on exertion, air-hunger, inability to lie down at night, or to undertake work in any form. They become neurasthenics. In one instance the patient committed suicide by cutting his throat after he had recovered.

As regards paralysis, there is evidence to show that a small proportion of the cases of abductor paralysis recover. Moure quotes a case in which the paralysis disappeared after the evacuation of a perioesophageal abscess through the pharynx. Körner also has seen recovery of abductor paralysis. On the contrary, in a small number of patients total paralysis supervenes.

Although the majority of larynx wounds recover after a time, one-third of the patients are less fortunate, and in battle many lives are undoubtedly lost owing to wounds of the neck and larynx. Even the survivors may be crippled by complications, such as paralysis of the brachial plexus, bronchitis, loss of voice, and injury to health.

For these it behoves us to improve our methods of treatment, and, if possible, to prevent the occurrence of the wounds. Considering that the uniform of a soldier at the Front includes a collar reaching to the jaw, it should be a simple matter to insert in it a band of steel which would have the same effect as a helmet.

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CÆCOPLICATION.

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IN a patient with pain in the right iliac fossa occurring in attacks or as a dull ache, with tenderness at or near McBurney's spot, irregularity of the bowels, and vague digestive disturbances, the diagnosis of chronic appendicitis is usually made. Appendicectomy, in the large majority of cases, leads to relief of the symptoms and great improvement in the patient's general condition.

There is, however, a residuum of cases where this operation fails to relieve the patient, the pain continuing as before. The explanation of this in some of these cases may be, that the appendicitis was only part of a general colitis; in others, that some other organ, as, for example, the ovary or tube, kidney or ureter, was at fault. These symptoms are sometimes loosely diagnosed as due to adhesions. While adhesions may account for pain in this region if they obstruct the passage of the intestinal contents, this explanation will not meet the whole case. Many patients, for example, after a severe suppurating appendicitis, in whom it is certain adhesions are abundant, are perfectly comfortable, while in other cases where the symptoms have been attributed to adhesions laparotomy often proves that none are present.

But even when all such sources of error are eliminated there is still a group of patients which present all the symptoms commonly ascribed to a chronic appendicitis, in spite of the fact that this organ has been removed. These cases, being far from uncommon, have recently attracted a good deal of attention and have been studied by a number of surgeons.

It is pretty generally recognised that in such cases we have to do with some affection of the cæcum, which is usually found to be voluminous and abnormally mobile. This condition has been called by a variety of names, such as cæcum mobile, typhlatony, typhlectasis, and voluminous cæcum—according to the observer's view of the precise cause of the symptoms—Wilms laying stress on the excessive mobility, Blake on the distension of this part of the bowel.

Anatomical Considerations.

The three longitudinal bands of the colon are continued on to the cæcum, where they meet at the attachment of the vermiform appendix. The innermost of these runs upwards to join the termination of the small intestine, the other two run in front and behind the cæcum respectively; between these bands the bowel wall is thrown into a series of

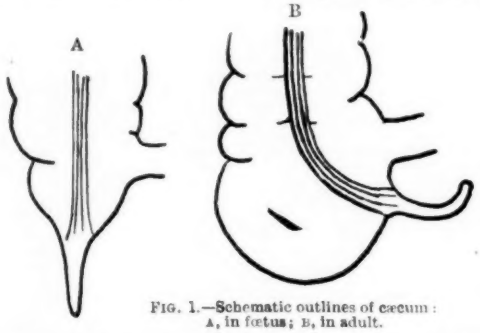

FIG. 1.—Schematic outlines of cæcum: A, in fœtus; B, in adult.

irregular sacculations. The bowel wall between the anterior and posterior (or postero-external) band usually forms a single simple sacculation which, even when undistended, is larger than those in the other segments between the longitudinal bands.

The cæcum primitively formed a symmetrical cone at the commencement of the large bowel (Fig. 1 A), but with the growth of its right wall, especially of the sacculation between the anterior and posterior bands, this organ becomes asymmetrical, its morphological apex, the origin of the appendix, being displaced upwards to the left, the sacculation in question forming a sort of pouch at the fundus of the cæcum (Fig. 1 B). This pouch tends to increase in size as life advances, and in many patients, especially in those whose symptoms we are considering, there is a tendency of the cæcum to prolapse into the pelvis, especially when it is distended. This prolapse and mobility constitute what is known as "cæcum mobile," and are sometimes so marked that an actual volvulus of the cæcum may occur. Many surgeons have come to the conclusion that this prolapse and mobility of the cæcum are the cause of the train of symptoms we are considering.

FIG. 2.—The operation of cæcoplication. The first row of sutures has been partially inserted.

The observed facts of physics show that when a hollow structure is distended by gas or fluid, the pressure is equally distributed over its walls, and therefore, with a given constant pressure, the larger this structure the greater the tension on the material of which it is composed. This means that an increase in the lumen of the bowel produces a greater strain on the bowel wall, stretching of its sensory nerves, and consequently pain. Although the strain on the bowel wall is equally distributed, the structure of the bowel is such that this is not equally well borne; the part of the bowel supported by the longitudinal bands being stronger and more resistant than the sacculations; and the large sacculation between the anterior and posterior bands, being the most unsupported, feels the strain most of all.

The cæcum seems to be the part of the large bowel which yields most readily to distension. This was well seen in a case recently operated on in King's College Hospital. The patient was suffering from acute intestinal obstruction, due to an annular carcinoma of the pelvic colon. The transverse colon was not distended, but the cæcum, which occupied the greater part of the pelvis, was enormously distended and so thinned that it ruptured when an attempt was made to bring it up into the abdominal wound.

That which occurs to such a marked extent in gross obstruction probably occurs also to a correspondingly lesser degree when the distension of the colon is merely caused by atony and constipation; and since, as we have seen, the weakest spot in the wall of the cæcum is the space between the anterior and posterior bands, it is just in this spot that we should expect to find the most marked effects. This argument is amply borne out by clinical observations.

Further, this distension of the cæcum, involving as it does the retention of its contents, will interfere with the drainage of the appendix and predispose to, if not actually produce, appendicitis. It is not unreasonable, therefore, to expect to find the two conditions existing together, and here again the clinical evidence corresponds.

Causation of Symptoms.

Wilms, of Basle, considers that the *mobility* is the most important factor. He considers that by its position the cæcum drags on its mesentery and indirectly upon the mesenteriolum of the appendix, causing pain by the

stretching of the nerves in these structures. On this hypothesis he treats such cases by "cæcopexy"—that is to say, fixation of the cæcum to the abdominal parietes. At first he recommended that this should be done by simple suture, but in his later paper [7] he advises that the peritoneum of the iliac fossa should be stripped up to form a sort of pocket

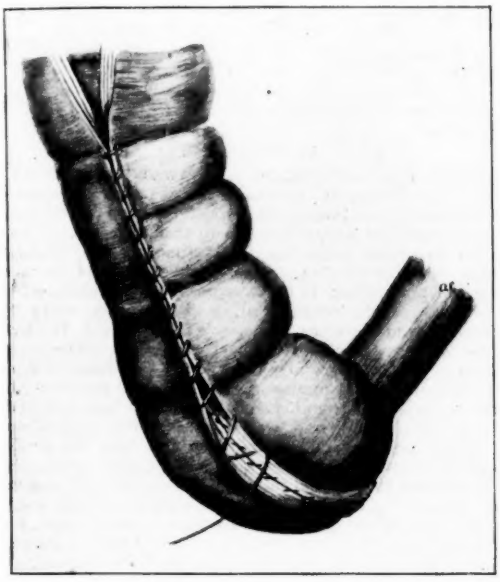

FIG. 3.—The operation of cæcoplication. The first row of sutures has been inserted and the second row nearly completed.

into which the cæcum could be inserted and so held firmly in place. He reports good results from this operation.

Other surgeons, notably Blake [1] and Klemm, [5] consider that the symptoms are due to the *stretching of the bowel wall*, and recommend that the size of the lumen should be diminished by "cæcoplication"—that is, by sewing together the anterior and posterior bands.

Cæcoplication.

Cæcoplication relieves the stretching of the nerve-fibres in the walls of the bowel by diminution of the size of the lumen of the bowel; hence, a rise of pressure within the colon has a smaller effect on its wall. Further, at the part where the bowel tends to bulge and become thinned a firm buttress of tissue is formed, well adapted to resist this strain, and protect therefore the contained nerve-fibres. Delbet has utilised the formation of this stiffish buttress of tissue to prevent the recurrence of intussusception of the cæcum.

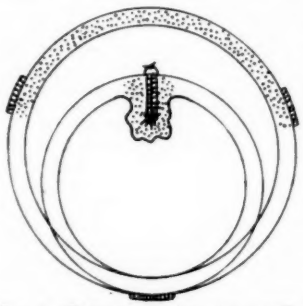

FIG. 4.—Diagrammatic transverse section of the cæcum before and after plication. The dotted portion shows the region of the cæcum affected by the operation.

We are inclined to accept Blake's view rather than that of Wilms, but it may be noticed that each operation fulfils in part the purpose of the other, cæcoplication drawing the fundus of the bowel up out of the pelvis and rendering it less mobile; while it is difficult to see how the bowel could be inserted into a retroperitoneal pocket without both reducing its lumen and supporting its wall. Oppel [8] has also realised the value of this method and states that he plicates the wall of the cæcum as a routine accompaniment to appendicectomy wherever possible.

When, therefore, a case of chronic appendicitis exhibits a long lax cæcum it is a good plan to combine cæcoplication with appendicectomy. This adds practically nothing to the risk of the operation, and the post-operative discomforts of the patient are, if anything, diminished, so that there need be no hesitation in performing it in any case.

Blake performs his operation by suturing the muscular bands with a continuous suture of fine silk, each stitch being drawn tight before the next stitch is passed, so that not only is the lumen of the bowel diminished, but also, owing to the puckering of the stitches, the fundus of the cæcum is drawn up.

We recommend that the operation should be done as follows:—

The suture is commenced where the stump of the appendix is invaginated, and we prefer a fine catgut to a silk stitch. The needle is passed through the adjacent edges of the anterior and posterior bands, which converge at this point, and these edges of the bands are then united by a continuous suture (Fig. 2) extending upwards for three or four inches towards the hepatic flexure. At first the sacculations of the colon tend to bulge between the stitches, but as the end of the suture line is approached this becomes less and less, until, as a rule, the whole lies quite smoothly. If there is any tendency of the bowel wall to bulge over the end of the suture line, this can be counteracted by picking up the bowel wall, between the bands, in the last stitch. The suture is then reversed and carried downwards towards its starting point, this time, however, picking up the edges of the bands which were originally farthest from each other, as shown in Fig. 3, and the suture is continued until the starting point is again reached. In this way the whole of the bowel wall between the bands is invaginated and held in place by union between the surfaces of the bands which have been sutured face to face. (This is shown in diagrammatic transverse section in Fig. 4.) The result of the operation is seen in Fig. 5, where the dotted line represents the outline of the bowel before the operation, and the continuous one the outline after; it will be seen that the bowel is drawn up, and that the backwater formed by the sacculation of the cæcum is obliterated.

Illustrative Cases.

Two cases have recently been operated upon which show the value of this operation, apart from appendicectomy.

The first case was a temporary naval rating who had had his appendix removed in a civil hospital. He complained of great pain, occurring in attacks, in his right iliac fossa, and tenderness. X ray photographs showed that the cæcum was distended, and as the scar of his previous operation was rather high up it was thought that perhaps the appendix stump had become adherent to the abdominal wall. Accordingly an operation was undertaken in the hope of freeing such adhesions as might be present. Everything, however, was found to be perfectly satisfactory; the appendix stump was cleanly healed, and there were no adhesions whatever. Cæcal plication was performed, as a result of which the patient made an absolutely perfect recovery. Even in this case the effect of suggestion and of a second operation might be invoked to explain the recovery, but the second case is even more conclusive.

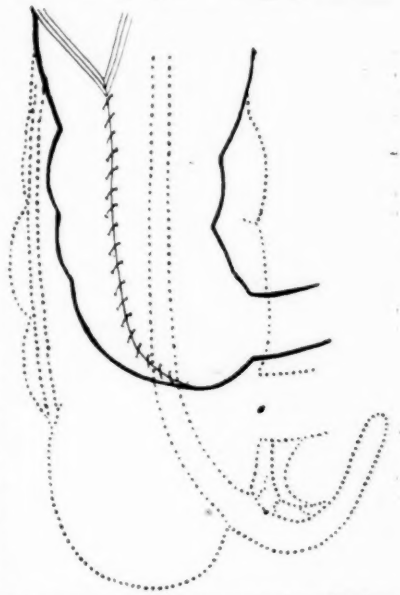

FIG. 5.—Diagram showing the results of cæcoplication. The dotted line represents the bowel before the operation, the unbroken line the condition which obtains on its completion.

A young woman was admitted to the Great Northern Central Hospital with the usual symptoms of chronic appendicitis; the appendix was removed, but with no relief

of her symptoms; there were still pain and tenderness in the right iliac fossa. A radiogram was taken and showed a shadow in this region, which was diagnosed as having been produced by some calcareous glands in the mesentery. The abdomen was opened a second time, the calcareous glands were discovered. Although such glands very rarely give rise to symptoms, it was considered possible that they might be the cause of her pain and they were accordingly dissected out, fortunately with no injury to the blood-vessels of the mesentery. Still her pain persisted with considerable severity, so much so, indeed, as to completely incapacitate her. It was thought that this might be neurosis, and a Paquelin's cautery was applied over the tender area, again without result. During this time the patient was under very careful observation in hospital, and there was no doubt as to the genuineness of her sufferings. It seemed impossible that anything could have been overlooked after two laparotomies, but it seemed imperative to do something. On opening the abdomen for the third time the sites of the previous operations were found soundly healed without adhesions, but this time her cæcum was plicated and relief of her pain was prompt and complete.

Remarks.

These cases show the value of this operation and, we consider, demonstrate successfully the connexion between distension of the cæcum and chronic right iliac pain. It might be supposed that this procedure would add considerably to the post-operative discomfort, but this is not the case. We have made careful inquiries of the nurses who have been in charge of these cases during the first few days, and it appears that the patients are certainly no more uncomfortable, and, if anything, suffer less from post-operative flatulence.

The operation takes but a few minutes to perform, and as in cases in which it is necessary the colon is always fairly mobile we have found it possible in most cases to perform it through the ordinary appendix incision. Except where abdominal exploration is required we prefer a muscle-splitting operation on the lines of McBurney's incision. As originally practised this did not give very much room, but a modification of this is now used which gives greater accessibility without abandoning any of the excellent principles upon which it is based. In this the skin is incised transversely, the external oblique split in the direction of its fibres, which are well retracted, and the internal oblique and tranversalis split up to the outer border of the rectus sheath, which in its turn is divided transversely, the rectus muscle being displaced inwards. By this incision excellent access can be obtained to the peritoneal cavity with very little injury to the abdominal wall.

Since being convinced of its value we have for some years past performed this operation frequently and freely as a complement to appendicectomy, whenever there was any sign of distensibility of the colon. Such good results are occasionally obtained from appendicectomy that it is a little difficult, apart from the cases which we have quoted, to be sure how much of the patient's improvement is due to the plication; but it does seem quite clear that after the operation chronic constipation is lessened, and even when the patient's bowels act infrequently abdominal discomfort is less and the symptoms of intestinal intoxication are markedly improved. For these reasons we consider that this operation deserves a wider application: that it adds practically nothing to the severity of the operation, and greatly increases the patient's chance of complete recovery.

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BRITISH RED CROSS SOCIETY.—The director of the City of London Branch of this society arranged recently for a recruiting week with the particular object of getting more members for working in auxiliary hospitals, and also for general service work. With the approval of the Bishop of London, the clergy were asked to appeal from their pulpits for members. At the central examinations held during the month of April, of 112 candidates 100 passed in first-aid, of 93 candidates 86 passed in home nursing, and of 19 candidates 17 passed in hygiene and sanitation.

The Red Cross in Mesopotamia.—Colonel J. S. Wardlaw Milne has proceeded to the United States on a lecture tour descriptive of the Red Cross in Mesopotamia.

Medical Societies.

ROYAL SOCIETY OF MEDICINE.

THE FUTURE OF THE MEDICAL PROFESSION UNDER A MINISTRY OF NATIONAL HEALTH.

A GENERAL meeting of the Fellows of the Royal Society of Medicine was held on June 5th, Sir RICKMAN GODLEE, the President, being in the chair, when the discussion on the Future of the Medical Profession under a Ministry of National Health was resumed.

Basic Principles.

Surgeon-General Sir BERTRAND DAWSON said that it had been suggested that debate should be confined to the question of the Ministry of Health. He disagreed with this because success depended not only on the formation of a Ministry of Health but upon what it did. It should voice the ideals and aspirations of the whole profession, and it must unite the profession; it must represent the whole of the profession, or it would fail, and it must unite the preventive and curative sides. When formed it would group together many existing services, but there would be two predominant partners, the Local Government Board and the Insurance Commission. These would represent very important bodies of opinion, but a Ministry based on them alone would not unite and lead the profession of medicine. Increasing numbers of medical men felt that the present system was outworn, but they were still seeking for the lines that reconstruction should follow. We should work out and seek agreement on the basic principles which should underline any plan of reconstruction, so that we could speak with authority when the opportunity should arrive. Curative medicine had ceased to be the work of the individual, and success was now only possible by team-work; therefore medicine must be coördinated. There was nothing new in the words "State Service." There were two meanings attached to it. By some it was regarded as a service in which every member was occupied the whole of his time and had a salary; to others it meant a part-time service, members of which would earn a greater proportion of income by salary than formerly. Every conception of State service involving whole-time salary would crush progress and be the death of all that was best in the profession, but we must not forget that the same thing occurred by heaping up the routine of daily life so that a man had no energy or soul to carry on, which was the danger of continuing along the present road. The basic principles he outlined were as follows:—

1. There must be an approximation between preventive and curative medicine both in teaching and treatment; there was no longer any solid ground for separating them. Who was to say in tuberculosis and typhoid where preventive ends and curative begins? The general practitioner would widen his outlook and his functions. It would be as much his duty to prevent as to cure disease; he would take a part in the health services of his district; he would be a leader of the people; he would have specialists to refer to, but he would be the court of first instance with wide discretion.

2. The general practitioner was at the centre of the success of any scheme, and we should do all that was possible to attract into the profession those of a high standard of intellect, training, and character.

To do this we must give each of them opportunities for the best work within his own sphere, suitable equipment, opportunities for observation, self-education and research, an adequate remuneration, and adequate repose. Consultants and specialists must be available to aid him, but they must never replace him so as to degrade him to the function of a clearing-house. There must be no importing of full-time people from without to run clinics. He must furnish the services and influence the opinion of his own district. The treatment of disease must in all classes of the community be increasingly institutional. This was necessary because more and more it was not individual work but team-work which was needed, and equipment was essential. What was true of preventive medicine to-day would be true of curative to morrow. Such institutions were growing up all over the country. We now had pre-natal and maternity clinics, school clinics, tuberculosis and venereal dispensaries. The local doctors should staff the institutions of their districts; there the doctors would do a necessary proportion of their work to the advantage of the patients and of themselves. To fill these posts by outside whole-time, salaried officials would take the heart and interest out of the local men. Such posts could only be eligible to men who had passed a post-graduate course of study; local men would qualify and get

the preference. This would mean better doctors and a more patriotic interest in the civil life on the part of a local general practitioner.

Courses Open to the Medical Profession.

Dr. CHARLES BUTTAR said that the two matters under discussion, (*a*) the necessity for the formation of a Ministry of Health and (*b*) the position of the medical profession under a Ministry of Health, were separable but not easily disentangled. A Ministry of Health would probably come because a section of the public was insisting on it; but its advent would be delayed by the conflict of rival Government departments. Sir Watson Cheyne suggested that the medical profession should press for the formation of a Ministry of Health. But why should it do so? Was it with the idea that the medical profession itself would benefit by replacing several King Logs by one King Stork? Or was the demand due solely to altruistic anxiety for the good of the community? Quite a number of people seemed to believe that a Ministry of Health would lead to what was called a State Medical Service. Far too much was expected of such a service, which could not change human nature, and certainly would not lead to the millennium. And the State official would be the same person who now treated patients on present lines, except that he would tend to lack human sympathy. It was curious, too, that with the Insurance Act still so young it should be thought necessary to engineer another huge upheaval. Such a proposal could only have arisen because the Insurance Act had proved a failure. That failure was really due to the impossibility of compelling every doctor to go on the panel. So long as there remained doctors who were not under State control, so long would patients with a few shillings in their pockets think—quite erroneously, no doubt—that they were getting something better by going to these doctors. Three courses were open—

(1) To press for a complete measure of State control, binding alike on the profession and on the public.
(2) To encourage to the full the organisation of voluntary effort.
(3) To try to work ineffective and expensive compromises, such as the Insurance Act or some of the partial schemes of State medical service which had been suggested.

The best method was the second, but it required coöperation and organisation. As a first step to such organisation it would be well that there should arise out of this discussion a small body of medical men representative of the Universities, the Royal Colleges, and the British Medical Association. This body should deliberate on all the proposals that had been made, and should assume the function of guiding the medical profession as to its future on statesmanlike lines. If this was not done, then the profession must be content to accept whatever measure of State control the public, as represented by Government departments, chose to impose.

The General Practitioner: Poor-law Service.

Mr. VIVIAN GREENYER said that the scheme did away with private practice to a certain point. The whole of the community was to be parcelled out into districts of about 2000 people, each in charge of a medical man. The public objected to being tied down to one. There was a psychological relationship between patient and doctor, and patients would insist upon going to a doctor they liked. Those who had enough money to be independent of the State service would avail themselves of consultants, who would thus have this section of the public as their *clientèle*.

Dr. J. D. CREE said that we must study the difficulties of the general practitioner, and these resolved themselves into difficulties of diagnosis. There were no means of obtaining bacteriological or pathological assistance in diagnosis except in cases where an expert could be afforded. The State must come in and assist the doctor to arrive at a diagnosis by a method of notification of disease in which it should be stated by what means the diagnosis was arrived at (clinical, pathological, or bacteriological tests, &c.), or stating the symptoms if the diagnosis was not yet made. In this way the State could carry out fuller and more perfect investigation.

Dr. C. T. PARSONS spoke from the point of view of the Poor-law Service, the defect of which was that it was local and not national. He suggested a scheme of reconstruction whereby in districts there should be institutions for the treatment of (*a*) curable cases, (*b*) incurable cases, and (*c*) children. In a county area there should be special infirmaries for special work—e.g., one equipped for cases to be treated by baths and electricity, and so on. Specialists in charge of these institutions would be available for district infirmaries. Poor-law institutions were staffed by whole-time medical officers. It was impracticable for the general practitioner to follow his patient to the infirmary on account of the number of patients there. A scheme should be formulated by a committee of the society with representatives of other medical bodies.

Outlines of a Scheme.

Dr. BENJAMIN MOORE drew attention to the remarkable interest taken by the public at the present time in problems relating to national health and welfare. All were agreed that health was an essentially primary matter requiring an important Department of State for its sole attention. Disease in any one individual or infesting any one section of the people was a common danger shared by the whole community. The treatment and suppression of disease was a national task of paramount importance in the evolution of a fit and happy race. At this point the nation looked for guidance to its medical scientists, to its public health administrators, and to the doctors in practice. The need of the moment was coöperation in a friendly spirit between these three great arms towards the establishment of a curative and preventive service which should tackle disease at its sources in a truly scientific fashion, having as its sole objective the eradication of the causes of deterioration and ill-health. For the success of such an enterprise three organisations were requisite:

The first body is the staff of medical researchers, not only in the laboratory, but wherever disease appeared, in school or camp, or workshop, searching out new methods for detection, prevention, and cure. The second is the administrative staff applying these discoveries, acting as a great offensive executive and planning new methods of application of scientific knowledge, whilst the third corps is the great public clinical service of the future, treating disease in the hospital and (for the family) at home untrammelled by conditions of work, by ability of patients to pay, by having to wait to be called in, and in carrying out clerical drudgery. None of these three great divisions is purely preventive or entirely clinical. All good clinical work must possess a conservative and preventive aspect, and it is impossible to carry forward many great preventive schemes without taking charge and care of ailing people, treating them for disease with a curative object so far as they personally are concerned, but with a preventive object as regards the rest of the community. There is practically universal agreement as to four essentials:—

1. A Ministry of Health, with a President of Cabinet rank.
2. A new Public Health Service with large staff and greatly increased powers.
3. A new Public Clinical Service evolved from or taking the place of the present panel system, and including men, women, and children.
4. The coöperation of both curative and preventive services, utilising the local hospital as a unit for the work of the district, the various types of hospital having been coördinated and made accessible to the officers of the new service.

The new National Medical Service, he thought, should be free and open to all for the following reasons:—

1. Health was of national importance and disease was a national danger, therefore no person should be allowed to leave disease untreated.
2. The needs of a given individual as to treatment bore no relationship to the length of his purse. Medical skill must be brought comfortably within the reach of the middle classes instead of being, as now, almost the monopoly of the pauper and the plutocrat.
3. Only a free and open service could so be placed in touch everywhere with the preventive service as to supply all the expensive apparatus and equipment necessary to diagnosis and treatment and to detect and stop infectious disease at its sources. This was difficult in private practice, where the disease might be far advanced or communicated to others before the doctor was called in.

At the same time there was no reason why any patient should be forbidden to consult privately any doctor of his choice, whether a member of the National Service or not, receiving and paying for advice specially given. It was almost unanimously agreed that all the preventive staff and all doctors employed wholly upon administrative posts should be whole-time officers paid by salary; but so long as there was a hostile spirit among the present body of private practitioners towards any scheme of a whole-time salaried staff on the treatment side of the service, rather than force the profession it would be necessary to inaugurate some interim device alongside the permanent scheme, but plans should be so laid that a properly recompensed whole-time service would ultimately arise. The service was so important as to be one to which the best brains and talent of the youth of the country should be attracted. A whole-time salaried service was better in the interests of futurity than any part-time service or payment per capita because:—

1. The appointment of whole-time officers on the preventive side, and part-time officers or panel practitioners on the treatment side would jeopardise the unity of the whole scheme, and cut too hard a line between the two aspects of medicine. The preventive branch, as science advanced, invaded the territories of the treatment side, and itself would inevitably take up an aspect of treatment under preventive conditions; hence those doctors adhering purely to private treatment would find yearly less work to do, and must decrease in numbers as the State appointed more preventive officers.
2. All the medical officers of a district should be available for mutual assistance, and form a team instead of a number of struggling

competitors; practitioners should be distributed according to the medical needs of the districts and not according to the wealth of their inhabitants; transference and promotion should be possible from one district or municipality to another.

3. When teams had been formed it would be possible to secure regular hours of work and relaxation; to arrange days off duty and a regular annual holiday; to give each doctor regular periods for study and greater opportunity for specialisation in his work; to secure fixity of tenure for each officer, a definite age for retirement on pension, and some leisure after his life's work; to provide safety and freedom for all officers to criticise public health measures and to take unfettered action in the public interest.

4. It was an unnecessary aspersion upon the honour of the medical profession to say that they would not give their best when paid by salary. In other crafts and professions it was rapidly becoming realised that the best work was not done by piecework and that in the end it did not even promote hard work.

Conclusion: Proposed Committee.

Surgeon-Major GORDON DILL, in a general reply, said that some were adverse to any change in the present conditions, but the aim should be to shape them to the best advantage of the nation and the profession. We did not want to establish a new State service, but to reorganise the conditions of the present service, and this must be done from inside the profession. The aims in view were: to improve the health of the nation; to put prevention of disease and public health on an intelligible basis and under proper control; so to improve the conditions under which medical men worked as to attract the best, and put the profession in a position to rival other careers.

It was proposed by Dr. PARSONS and seconded by Lieut.-Colonel LLOYD WILLIAMS—

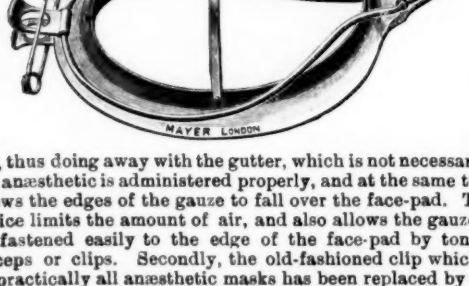
That this meeting, the third at which the future of the medical profession under a Ministry of Health has been discussed under the chairmanship of the President, requests the Council of the Society to appoint a small watching committee to consider the progress of the movement and to report to the Council from time to time.

The proposal was carried unanimously.

New Inventions.

A MASK FOR THE ADMINISTRATION OF ETHER BY THE OPEN METHOD.

DIFFICULTY has been experienced in the past, during the administration of ether by the open method, through the ordinary mask being unable to hold securely the requisite amount of gauze. An attempt has been made to obviate this in the mask illustrated. First, the outer edge of the tray is



flat, thus doing away with the gutter, which is not necessary if the anæsthetic is administered properly, and at the same time allows the edges of the gauze to fall over the face-pad. This device limits the amount of air, and also allows the gauze to be fastened easily to the edge of the face-pad by tongue forceps or clips. Secondly, the old-fashioned clip which is on practically all anæsthetic masks has been replaced by two perforated plates with turned-up ends. After the gauze has been placed on the mask and the ring closed down a safety-pin encloses the plates; it is then impossible for the mask to become unfastened until the pin is taken off. The older masks have a tendency to fly open without warning. If a pin is not available the mask can be secured by string, tape, or bandage passed through the perforation and tied. The aim of this mask is to hold the large number of layers of gauze necessary during the administration securely, without being strained or getting out of order, and at the same time allowing the edges of the gauze to rest easily on the face-pad.

I am greatly indebted to Messrs. Mayer and Meltzer, 71, Great Portland-street, London, for their kindness in working to my pattern and instructions.

J. B. H. HOLROYD, Lieutenant, R.A.M.C.,
Anæsthetist, Queen Mary's Military Hospital, Whalley, Lancs, and Sheffield Royal Hospital.

JOURNALS.

The Quarterly Journal of Medicine. Edited by WILLIAM OSLER, J. ROSE BRADFORD, A. E. GARROD, R. HUTCHISON, H. D. ROLLESTON, and W. HALE WHITE. Vol. XI., No. 42, January, 1918. Oxford: At the Clarendon Press; London, Edinburgh, New York, Toronto, and Melbourne: Humphrey Milford. Subscription price, 25*s.* per annum. Single numbers 8*s.* 6*d.* net each.—The contents of this number are: A Study of a Series of Cases of Injury to the Chest, seen at the Base, by C. Dean. The cases here considered comprise 129 admitted between February, 1916, and March, 1917, 40 being due to bullet wounds, 80 to shell wounds, and 9 to crushing injuries. It was found that in hæmothorax produced by bullet wound sepsis was unusual, whereas about half of those produced by shell wounds were infected. Pain and tenderness with hyperæsthesia of the skin in a case of hæmothorax, strongly suggest the occurrence of infection, though it is stated that of all the early symptoms of infection of hæmothorax, sleeplessness is perhaps the most valuable. Another important symptom is the loss of weight, greater and more rapid than that produced by sepsis in other parts. Abscess of the lung was rarely observed. Lobar pneumonia which occurred in six patients did not prove as serious a complication as might have been expected. The author mentions that the X rays are an essential for the diagnosis and treatment of hæmothorax, and he advises that a hæmothorax of moderate size should be aspirated after six or seven days, by which time there is no risk of further hæmorrhage in sterile cases, and states that clotting to a degree sufficient to prevent aspiration is rare. The position of the diaphragm is often abnormally high in cases of hæmothorax, a point to be remembered when aspiration or resection is necessary. When infection of a hæmothorax is due only to pneumococci aspiration often gives a better result than resection.—On Sulphæmoglobinæmia, by W. C. Long and E. I. Spriggs. A case of this condition in an unmarried lady aged 32 years, with the usual symptoms of cyanosis, constipation, debility, and headaches, is described, together with some interesting laboratory records. Attempts to find a nitrite-producing bacillus in the saliva and a substance in the blood serum reducing oxyhæmoglobin strongly, as found in some cases by other observers, proved negative. Improvement followed the use of a diet consisting mainly of carbohydrate foods, the administration of purges, and antiseptic medicines.—Clinical and Pathological Notes on Trench Nephritis, by W. H. Tytler and J. A. Ryle. An interesting analysis is given of the clinical features of 150 cases of this condition and of the pathological conditions found at 25 autopsies. The authors lay stress upon the fact that the most evident lesions observed by them in these cases were in the lungs, consisting of two factors—a primary diffuse exudative process and a secondary infective bronchitis—and they express a doubt as to whether a kidney lesion is really the basis of the disease.—Observations in six cases of Paroxysmal Tachycardia, by W. E. Hume. Polygraphic and electrocardiographic records are given of six cases of paroxysmal tachycardia, in which the pacemaker appeared to be in the ventricular musculature. The effects of varying conditions as regards the nervous system and of certain inhalations were observed in these cases.—Critical Review: Abscess of the Brain, by W. B. Warrington. An interesting and practical study is given of the causes, symptoms, diagnosis, and treatment of this condition.

Military Surgeon (Washington, D.C., U.S.A.).—The April number of this journal contains an editorial article, signed by Colonel C. H. Munson, who observes that many pamphlets reach the office from liquor sellers, shedding tears over the abolition of the wet canteen. On this he observes:—

"The canteen itself was an evil. It furnished an opportunity to begin a habit or fix one, and as such it had elements of harm. ..... The war has proved that prohibition can be enforced. ..... A venal police is not found in the service. ..... Alcoholism is not an instinct. ..... Frequent opportunity and attractive environment are necessary to the creation of the habit. ..... Under prohibition the class of alcoholics will die out without the perversion of the younger generation. ..... After the war is over, sober millions will doff the uniform and go home to vote out the liquor business. ..... The liquor trade business is an outlaw. ..... The only logical argument for it is ..... that the liquor trade is profitable, and that those who engage in it need the money."

As the opinion of a recognised expert on the health of soldiers, these sentences should be weighed. To show the unrecognised danger that may follow from alcohol we may tell a story of some years ago. A small gunboat lay in a neutral harbour in war time. It was important to some she should not go to sea, as certain cargoes were coming in ships which were very vulnerable, even by this gunboat. To her enemies came a boarding master who proposed, for a consideration, to "shanghai" her sailors. But it was essential her officers should be hoodwinked. What more useful method than a sumptuous and lengthy dinner given them, with appropriate and expensive wines? So it was arranged; and when the officers got about next morning they found they had no crew!

THE LANCET.

LONDON: SATURDAY, JUNE 15, 1918.

Hospital Sunday, 1918.

SUNDAY, June 23rd, will be Hospital Sunday, for a year has gone by since the Metropolitan Hospital Sunday Fund last made its appeal for the medical charities of London and its neighbourhood. We call attention to the date a week in advance, so that our readers may bring home the claims of the Fund to their friends in good time. In those now distant days of peace when we asked a generous public to remember the needs of the hospitals of London and to give liberally on Hospital Sunday, we were wont to lay stress on the achievement of the institutions in the relief of the sick and suffering, and to contrast the greatness and the inevitableness of the demand upon their accommodation and resources with the slenderness and insecurity of their incomes. Addressing ourselves not to our professional readers but to the lay public, we dwelt each year with renewed emphasis upon the debt of gratitude which all alike, rich as well as poor, owed to the hospitals and to those who toiled daily in their wards, pointing out how the work of bringing the sick and injured back to health and strength went hand-in-hand with that of training fresh generations of physicians, surgeons, and nurses to carry on the work of their instructors in the future. What shall we say now in days of decreased incomes and of doubled and trebled costliness of everything that is needed by the inmates of hospital wards, whether for their daily nourishment or for their necessary treatment? What shall we say now of the nation's indebtedness to its hospitals and of the claim which the Metropolitan Hospital Sunday Fund puts forward on their behalf?

The best answer we can make to our questions is to invite all to remember what has been done in hospitals and clearing stations behind the lines on every front where British soldiers have fought since August, 1914, and on every battle-field. We ask those whose sons or brothers have bled for their country, or have been struck down by sickness in the weary summers and bitter winters they have passed in the trenches, whether the institutions where surgeons and physicians have acquired their skill, where scientific investigation has discovered new methods of combating death and disablement, where nursing staffs have undergone their training, and where all have learnt the value of organisation, discipline, and coördinated effort—whether such places do not deserve all the help they ask for. In truth, there should be as little need to remind our fellow-citizens of the part which their hospitals, founded and developed for the benefit of the civil population, have played in the war, as to remind them of the war itself. The wounded are among us not in hundreds, but in thousands, to emphasise our appeal, and that not merely as silent witnesses. They will have told their tale to friends and relatives, knowing, many of them, that they have been brought back from certain death to life by medical aid. It is for the hospitals of the Metropolis, struggling to meet the demands heaped upon them by the war, that the Metropolitan Hospital Sunday Fund will make its appeal next week, and it is for men and women of the classes and the masses to respond to that appeal to the full extent of their powers. The response will be a generous one on the part of all who remember and reflect; and lest there should be a danger of some forgetting or failing to realise the urgency of the demand, we press upon those who are themselves remembering to give to remind others to do the same. A week remains in which our readers are begged to influence, through every channel that is open to them, the generosity of the public towards the aid of the London hospitals, institutions to which the debt of the public can never be discharged.

Water-supply in War-time.

THE effective administration of a vast water-supply like that of the metropolis means that the work of research must go on constantly in order that new problems as they arise may be satisfactorily dealt with, and the public health protected in whatever form danger is threatened. In the case of the London water-supply, as is generally known, the raw material is drawn from several distinct sources, and from each the water is subject to fluctuations in physical and chemical characters, mainly according to meteorological conditions. The work of control, therefore, is no light task, as the weak spots may be found in any of several immense organisations.

In his twelfth annual report issued recently, on the results of the chemical and bacteriological examination of the London waters for the 12 months ended March 31st, Sir ALEXANDER HOUSTON, whose labours as Director of Water Examination to the Metropolitan Water Board have now been fittingly recognised, is suffering under the restrictions placed upon him by the necessity of enforcing paper and printing economies. He repeats with pathos a statement in his previous report, that "it should be remembered that 'paper' sometimes imparts knowledge and knowledge not infrequently leads to economy." Sympathy from all scientific workers in the public interest, and from ourselves as recorders of scientific progress, will go with him when he pleads that it is obviously impossible to convey authoritative knowledge on technical matters to others except by the printing of scientific reports; certainly much valuable information will be lost if the shortage of paper has to be met by suppressing unduly the publication of the very things which should see the light of day in the interests of public good. To some extent the shortage of paper has been met in this report by severe compression, and since 1916 Sir A. C. HOUSTON has made the attenuated annual reports the

medium for conveying information which used to figure in separate reports devoted solely to the results of research work. Abbreviated though his message to the vast constituency may be, it is none the less packed with the lessons that should be learned. Sir A. C. HOUSTON is able to state, as he has done in previous reports rendered since the outbreak of war, that despite the war, and with all the disadvantages of a constantly changing staff, the work of water examination has not been allowed to suffer any appreciable diminution in quality or quantity, and in his report he is able to justify his words, while we make no doubt that he has kept other records which do not appear as printed matter but exist in full detail for official consultation.

Among the most important subjects dealt with in the present report is the progress which has been made in the application of chlorine or its equivalents to the purification of the waters from the river sources. Scientifically sound, the method seems economically advantageous, although certain difficulties have arisen in regard to its practical application. Taking a period embracing the bad winter months, it was found that the average chlorinated raw river water result works out at 83 per cent. "negatives" and 17 per cent. "positives"—figures which "show that better results, as judged by the *B. coli* test, can be obtained by chlorination than by storage," and how good these results are we have borne frequent testimony. It is reassuring to learn that despite the magnitude of the scale of the work to be done —70 or 80 million gallons of water are treated daily—no complaints have been received as regards taste." The dose has varied according to circumstances, but was usually 0·5 in 1 million (1 in 2 millions) in terms of available chlorine. Considerable success, however, has also been obtained with smaller doses—0·33 in 1 million, and on the whole, the latest results point to a probable reduction rather than an increase in the average dose. In respect of economy, chlorination has saved a very important amount of fuel which otherwise would have been used for pumping the water into storage reservoirs. During the year the saving in coal thus effected amounted to about £15,000; as the cost of chloride of lime was about £3500 the net lightening of public expense was quite an appreciable one. There are, however, certain factors connected with chlorination which require consideration, either for their own sake or in comparison with the outcome of storage. One not unimportant effect of chlorination is that the initial hardness of the water is to some extent retained, while storage exercises a softening effect on hard waters, and the non-chlorinated waters generally yielded slightly higher results during the year as regards chemical constituents, which are probably of no hygienic importance. Against this there is the fact that more *B. coli* in river water are killed by chlorination than are removed by storage, so that the economy of the process, far from increasing the risks to the consumer, diminishes them. Attention to detail, moreover, proves that chlorination need not offer any obstacle to the efficiency of the filtration processes. Speaking generally, the results have been attained by the use of the method which without inconvenience, annoyance, or semblance of danger to the public has been cheap and effective. It may be wondered whether, after the war, when the consumption of coal is not such a vital matter, storage will come into its former position, or whether, with a return to normal conditions, chlorination of raw river waters will be found to be an equally good or better expedient. Sir A. C. HOUSTON believes that the margin of cost will always be in favour of chlorination, and there the matter may be left temporarily at rest, for discussion will serve no purpose, while every day is giving opportunity for further practical trial.

The Food Problems of the Allies: Concerted Action.

IT was in Paris in November, 1917, that an Inter-Allied Conference was held at which it was agreed to set up an International Scientific Commission which should meet periodically to consider from a scientific point of view the food problems of the Allies and, in agreement with the Inter-Allied executives, to make to the Allied Governments any proposals which they might think fit. The members ultimately appointed on this Commission were as follows:—France: Professors MARCEL GLEY (Collège de France) and J. P. LANGLOIS (Paris). Italy: Professors FILIPPO BOTTAZZI (Naples) and PAGLIANI. Belgium: Professor H. HULOT (Ministry of Interior). United States: Professors R. H. CHITTENDEN (Yale) and GRAHAM LUSK (Cornell). United Kingdom: Professors E. H. STARLING (London) and T. B. WOOD (Cambridge). The Commission promptly got to work, the first meeting being held in Paris on March 25th last, and the second at Rome on April 29th. At the first meeting agreements were arrived at as to the minimum food requirements of "the average man," while at the meeting in Rome the Commission considered questions of general interest on which agreement was necessary before it would be possible to calculate the food-supplies and requirements of the Allies on a common basis. We have this week received from the Ministry of Food a copy of the conclusions which the commissioners have arrived at on these heads. This consensus of high scientific opinion is of the greatest importance and interest, and we propose to deal in an early issue with the salient features of the report. In the meantime the Commission reserves for its next meeting the task of examining the figures set forth which will enable them to determine the calorie value of the home production of each of the Allied countries. The determination of these figures, compared with the needs in calories of the population of each country, will thus enable them to deduce the amount of imports necessary for the maintenance of the population, or the exportable surplus, as the case may be. It will readily be understood how unity of action by the Allies is desirable as much in regard to food as other problems of the war.

Annotations.

"Ne quid nimis."

MILITARY RANK FOR PHARMACISTS.

THE report of the hearing on the Edmonds Bill before the Committee on Military Affairs of the House of Representatives of the United States Congress makes a volume of 106 pages, and the arguments presented therein for the granting of military rank to pharmacists seem as worthy of serious consideration by the military authorities here as well as in America. The health of the soldier is of paramount importance, and if a corps of pharmaceutical chemists with commissioned rank will improve the conditions of the soldier its inauguration is, so far, commendable. This argument was put forward very strongly by Mr. George W. Edmonds, Member of Congress for Pennsylvania, and his colleagues, and a tabular statement included in the report, which summarises the personnel and work of military dispensaries, shows that in many cases men are in charge of the dispensing who are not even pharmacists. Aside from the question of dispensing—which is simplified by tablet medication, if due care is taken that no interchange of tablet is made by untrained men—the procurement and distribution of drugs and dressings is distinctly a pharmaceutical and not a medical function; and in view of the urgent need for the services of medical men in strictly medical lines of work the supporters of the measure urge that medical men should be spared from non-medical work wherever this is possible. They point out, for example, that it should be feasible to replace the medical men now engaged in supervising the work of medical supply depôts by pharmacists of high attainment and broad knowledge, if such men are given the inducement of rank somewhat equivalent in the Army to the social position which they occupy in civil life. The pharmacists, in urging the passage of the Edmonds Bill, say that a sufficient number of their body for the needs of the service can only be got readily if the men are offered adequate recognition in the matter of commissioned rank, nor can they do their best work on contract as civilians. This fact is so far recognised by the Surgeon-General of the United States Army that he is now urging the passage of the Owen Bill, which gives higher rank to medical officers in the United States Army. In all the armies of the world except those of Great Britain and the United States, even in those of Australia and of Canada, the importance and value of the pharmacists' services are recognised by the granting of commissioned rank. The chief of the pharmaceutical service in the French and the German armies is a brigadier-general, or at least that was the case before the war began. He is a colonel in the armies of Spain and of Japan, a lieutenant-colonel in Italy, Belgium, Holland, and Austria, and a major in Switzerland, Norway, Sweden, and Australia. A Parliamentary Commission has been appointed in this country to investigate the medical supply service in the British Army, and the report of this Commission may indicate that there is need for the organisation of a pharmaceutical corps in our Army similar to that which has been doing such good work in the armies of France.

TRANSFUSION OF BLOOD ON THE FIELD.

IN THE LANCET of June 1st we dealt with the more technical aspects of the transfusion of blood, and we have been reminded by a correspondent at the front of the dramatic effect of the procedure in cases of severe hæmorrhage. For this purpose blood is incomparably better than all the salines and gummy solutions in the world, and many lives have been saved by its use. The immediate effect of transfusion approaches the miraculous. A wounded man who has been bled white, and is brought in cold and sweating, with imperceptible pulse and sighing respiration, becomes, as he is transfused, pink, quiet, sensible, and obviously restored to life. In cases of shock without hæmorrhage the value of transfusing blood is more open to doubt. The indication is still less certain in suppuration, although some hold strongly that it does good by reducing anæmia and improving appetite. With regard to technique, as far as experience at the front goes, the direct method of artery to vein has proved too complicated, and for this reason it is or is becoming obsolete. The syringe method has been found to give good results, but is also apt to take up too much time. The present routine methods are: (1) citrated blood—which has the great merit of simplicity and is open to the inexperienced; and (2) collecting "whole" blood into a Vincent flask to be passed directly into the vein of the recipient. The latter is the best method after a little practice has been acquired. The effect on the donor is, as a rule, very slight. A healthy man can give 500–750 c.cm. with little inconvenience. After two or three days' rest in bed, followed by light work, with good nourishment, equilibrium is restored. There is, in fact, no dearth of volunteers.

ERYTHRŒDEMA: A FURTHER NOTE.

THE annotation we published in THE LANCET of April 27th upon the pamphlet by Dr. H. Swift, of Adelaide, recording a condition in infants to which he gave the name of erythrœdema, has brought us some interesting correspondence, and has demonstrated that cases of similar character occur in this country. Dr. J. S. Doak, of Bradford, in a letter published in our issue of May 11th, mentions that several cases of similar character had been observed in the Infants' Hospital at Bradford during the past year. The cases were in infants aged from 8½ to 18 months, and the symptoms corresponded accurately with those described by Dr. Swift, except that a greater variation of temperature was observed in the Bradford cases. Acidosis was present in five cases, and the Wassermann reaction was positive in three. We have now received a copy of a paper by Dr. W. E. Hume, of Newcastle-on-Tyne, read before the Section of Diseases of Children at the annual meeting of the British Medical Association at Birmingham in 1911, and published in the *British Medical Journal* of Sept. 2nd, 1911, entitled "General Œdema following Gastro-enteritis in Children." In this paper a careful record is given of the symptoms in 13 cases and of the post-mortem appearances in two of them which proved fatal. The cases are of the same character as those recorded by Dr. Swift. The paper is also of special interest in the record of the two fatal cases, in both of which changes were found in the suprarenal glands. The cells of the cortex showed cloudy swelling, while in the medulla large masses of fibrous tissue were found, with an absence of medullary

cells. Dr. Hume found definite improvement in some of the cases after the administration of adrenalin chloride by injection. He suggests as a tempting hypothesis that toxins developed in the gastro-intestinal tract cause degeneration and fibrosis of the suprarenal medulla, and that the œdema may be due to the absence of suprarenal secretion, or to the direct action of the toxins on the capillary cells. We are glad to have had our attention drawn to this subject by Dr. Swift and Dr. Hume, since the careful observations they have made should be of value in elucidating these interesting conditions, and in calling the attention of practitioners to them.

THE PREVENTION OF INDUSTRIAL ANTHRAX.

OF late years there has been an appreciable increase in the incidence of anthrax in this country, particularly among persons employed in the worsted, woollen, and felt trades. In consequence a Departmental Committee was appointed, with Sir W. Middlebrook as chairman, to inquire into and report upon the best methods of preventing the danger from anthrax infection arising in the handling of wool, goat-hair, and camel-hair. Experiments were carried out by a subcommittee and the results have been published recently in a White Paper (Cd. 9057). The means for preventing the disease are either (1) to suppress the disease in animals, but this would be very difficult to carry out, seeing that a large proportion of the wool and hair comes from foreign countries over which proper control cannot be exercised; or (2) to destroy the anthrax bacillus and its spores in the wool and hair before it is manipulated by the operatives. As regards the latter means the subcommittee has devised a process by which, it is contended, the specific organisms can be destroyed. The method is divided into four parts:—

1. A preliminary process, in which the material is submitted to the action of a warm solution of soap in water containing a little alkali, followed by squeezing through rollers for the purpose of causing disintegration of blood clots, removing all protection from the spores and bringing the latter into a condition in which they are susceptible to the action of disinfectants.
2. Disinfection, in which the material already treated by the preliminary process is submitted to the action of a warm solution of formaldehyde in water and again squeezed through rollers, most of the spores being destroyed at this stage.
3. Drying, by which all the surviving spores are killed, except in exceptional circumstances.
4. Standing for a short time in order to ensure destruction of any spores which, from being exceptionally well protected, may have survived the previous part of the process.

The last two stages are to be regarded as largely in the nature of a safety factor. It is further suggested that Government should undertake the establishment of a central station capable of disinfecting the material, and estimates have been prepared as to the probable cost; these estimates are considered by the manufacturers to be reasonable.

INFARCTION OF THE HEART SIMULATING ACUTE ABDOMINAL DISEASE.

THAT thoracic may simulate abdominal disease is an old observation that dropped out of notice for many years, so that when attention was called in our columns by the late Mr. Harold Barnard [1] to a possible series of error in diagnosis his observations attracted much notice. In his paper entitled "The Simulation of Acute Peritonitis by Pleuro-pneumonic Diseases" he showed how abdominal pain, tenderness, and rigidity may be due to pneumonia or pleurisy. In one case of double pneumonia and right diaphragmatic pleurisy the abdomen was opened by a well-known surgeon because of the diagnosis of perforated gastric ulcer. The possibility of such simulation is now well recognised, but of the analogous condition of cardiac disease simulating abdominal little is known. In the *American Journal of the Medical Sciences* Dr. A. Levine and Dr. C. L. Tranter have reported two cases of infarction of the heart simulating acute abdominal disease. In one laparotomy was performed under this diagnosis. They were strikingly alike. Both patients (men aged 39 and 59 respectively) were admitted into hospital complaining of acute epigastric pain of a few days' duration in one and a few hours in the other. Both had suffered from slight nausea and vomiting. Physical examination showed epigastric tenderness and a questionable mass, dull on percussion, in the region of the gall-bladder. The pulses were of poor quality and slightly rapid, and the heart sounds were feeble. These signs and symptoms, with some fever and a leucocytosis of 20,000, suggested an acute inflammatory or perforative lesion in the upper abdomen. Both cases were fatal and nothing was found in the abdomen to account for the symptoms, but the anterior coronary artery was obliterated by thrombosis with resultant extensive infarction. General arterio-sclerosis was present. The condition described bears a close relation to angina pectoris, and especially to the abdominal form. It is a question, however, whether the abdominal pain in the latter is due to the cardiac disease or to disease of the abdominal vessels. In his recent work on "Diseases of the Arteries" Sir Clifford Allbutt refers to a case of fatal thrombosis of the right coronary artery in which there were pain and collapse suggesting a perforated gastric ulcer. The patient, however, had had previous attacks of angina pectoris, and in the last the pain was situated at the lower end of the sternum and left hypochondrium and radiated to the left arm.

[1] THE LANCET, August 2nd, 1902, p. 280.

TRANSPLANTATION OF THE URETERS.

IN several conditions it is desirable to be able to transplant the ureters from their natural positions, either because part of the bladder is wanting, as in ectopia vesicæ, or because it is necessary to remove a part of the bladder or ureter in the extirpation of a malignant growth. It is always a problem in these cases how best to deal with the ureter, for there is the greatest risk that sepsis may spread up the ureter to the kidney. In the present issue of THE LANCET is a paper by Dr. W. Blair Bell in which he describes a new method of dealing with the displaced ureter. For the details of his method we refer the reader to the article itself. Suffice it here to say that he utilises a portion of the intestine to form a reservoir or channel for the urine, the ureters being inserted into it and the bowel afterwards being made to communicate with the bladder or being brought to the surface. The method is certainly very ingenious and worthy of an extensive trial in those cases where it is necessary to divide the ureters in the removal of a large pelvic malignant growth. It may be mentioned that this is not the first time that a portion of the bowel has been utilised as a receptacle for the urine, for the ureters have been transplanted

into the large intestine in cases of ectopia of the bladder, but in most of the cases sepsis has spread upwards to the kidney. Maydl, by carefully preserving the ureteric sphincter, was able in great part to prevent this ascending sepsis. Makkas devised an ingenious operation by which the cæcum was excluded from the rest of the bowel and into it he implanted the ureters, providing by an appendicostomy this new bladder with an exit. Cunéo and Hovelacque have also employed portions of the bowel separated from the rest to form new bladders. Dr. Blair Bell secures by irrigation the asepticity of the separated portion of bowel before it receives the ureters, and so far as we are aware it has never previously been shown that it is possible to render free from germs such a separated piece of bowel. There appear to be great and promising possibilities in this new operation.

THE LANCET, VOL. I., 1918: THE INDEX.

THE Index and Title-page to the volume of THE LANCET completed with the issue of June 29th is in preparation. Owing to the increasing shortage in the paper-supply, the Index will not be issued with all copies of THE LANCET, as was the custom prior to the War. Subscribers who bind up their numbers are requested to send a *post-card* (which is more convenient for filing purposes than a letter) to the Manager, THE LANCET Office, 423, Strand, London, W.C. 2, when a copy of the Index and Title-page will be supplied free of charge.

THE BELGIAN DOCTORS' AND PHARMACISTS' RELIEF FUND.

SUBSCRIPTIONS TO THE SECOND APPEAL.

THE following subscriptions and donations to the Fund have been received during the week ending June 8th:—

	£	s.	d.		£	s.	d.
Dr. T. Rouse	1	1	0	Anonymous*	1	1	0
Mr. J. H. Jacobs*	10	10	0	Mr. E Spencer Evans(*m*)	0	10	0
Dr. H. J. Mackenzie ...	1	1	0	Dr. Albert Lucas	2	2	0
Drs. Forsyth & Norman	1	1	0	Dr. Alfred Cox (*m*) ...	1	1	0
Sir A. Pearce Gould (*m*)	5	0	0	Lady Cooper*	10	0	0
Dr. W. A. Milne	3	0	0	Mr. G. S. Albright* ...	50	0	0

* Per Sir Rickman Godlee. *m*, monthly.

Subscriptions to the Fund should be sent to the treasurer of the Fund, Dr. H. A. Des Vœux, at 14, Buckingham Gate, London, S W. 1, and should be made payable to the Belgian Doctors' and Pharmacists' Relief Fund, crossed Lloyds Bank, Limited.

UP to date the Hospital Saturday collection in Belfast amounts to £1640 10s.

BRITISH SCIENCE GUILD.—The twelfth annual meeting of the Guild will be held at the Mansion House at 4 P.M. on June 19th, when Lord Sydenham will give an address on Education, Science, and Leadership. Cards of invitation may be obtained from the Secretary, 199, Piccadilly, W.1.

WEST LONDON MEDICO-CHIRURGICAL SOCIETY.—A meeting of this society was held at the West London Hospital on June 7th, Dr. J. A. Rice-Oxley, the President, in the chair, when Captain D. McCrae Aitken gave an address, illustrated by lantern slides and casts, on the Correction of Gross Bony Deformities of the Lower Limbs Resulting from War Injuries, based upon results obtained at the Shepherd's Bush Orthopædic Hospital. He described his reversed bone-wedge method of dealing with injuries in the neighbourhood of joints, whereby shortening of the limb was obviated. Mr. Tyrrell Gray, Major Jocelyn Swan, Dr. James Mennell, and others took part in the discussion.

IRELAND.

(FROM OUR OWN CORRESPONDENTS.)

Organisation of the Irish Medical Profession.

A MEETING of delegates of the Irish medical profession was held on May 29th in the Royal College of Surgeons for the purpose of reconstituting the Irish Medical Committee. This representative body is elected on a democratic basis and was first formed in July, 1913, to act for the profession in matters arising out of the Insurance Act. It managed its business satisfactorily and has held the confidence of the profession. In view of the likelihood of future legislation which would affect the interests of the medical profession in Ireland, it has been thought necessary to continue the committee and to give it wider powers. At the meeting of delegates it was declared that the Irish Medical Committee was to be regarded as the authoritative body "for the purpose of recording the views of the medical profession in Ireland in connexion with Irish medical affairs, and, when necessary, promoting legislation thereupon." There are two medical associations operating in Ireland, the Irish and the British, and it is unfortunate that neither of them is in a position to speak for the entire profession. However, their present memberships are not strong enough to give them that authority. It appears necessary, therefore, to have a third organisation with greater authority. The chief difficulty of the Irish Medical Committee has always been the question of finance, and for the past few years it has been in the anomalous position of being dependent on contributions from the two associations whose activities it supersedes. Having re-established the Irish Medical Committee, the meeting of delegates proceeded to discuss questions concerning the status and interests of the Poor-law medical officer. There is at the present moment grave dissatisfaction in the service. Salaries were even in normal times inadequate, and at present barely pay working expenses. Many unions have as yet refused to establish graded scales of salaries for their medical officers, and the scales agreed on a few years ago are now found unsatisfactory. So grave is the discontent that some talk was heard of the advisability of a "general strike" in order to compel the Local Government Board to use their powers to fix salaries.

Sanatorium Benefit in Belfast.

The new Central Tuberculosis Institute was formally opened on June 6th, the ceremony being followed by a visit to the Whiteabbey Sanatorium. Dr. Andrew Trimble, who is chief tuberculosis officer for the city as well as medical adviser to the Belfast Insurance Committee, has just issued his report to the Committee on the work done for the year 1917. Out of a total of 3578 cases examined, 1492 (41·6 per cent.) were insured and exempt, and 2086 (58 4 per cent.) were non-insured. Of the 3578 examined, 2807 (78 4 per cent.) were either tuberculous or suspect, and 771 (21·6 per cent.) were non-tuberculous; of the types of the disease, the largest number were in the pulmonary class, then came the glandular group, but of the osseous and abdominal type, the non-insured had a much larger proportion owing to the fact that the non-insured class include patients under the age of 16. The unfortunate part of the report is, that despite the great cost of the Belfast corporation scheme, the tuberculosis death-roll of Belfast rose from 2 1 per 1000 in 1916 to 2 4 in 1917. The reasons given for this deplorable feature in this report are a keener search for tuberculosis, more accurate diagnosis, the war (due to reduction of the healthy civilian population, and the return of the tuberculous), the increasing scarcity and cost of food, the wear-and-tear of warfare and munition work, and the succession of severe climatic conditions for three consecutive years. The tuberculosis officer thinks the old view that tuberculosis is a house disease is hardly tenable. He says: "More probably it is not the occupation but the wages paid in the occupation is the dominant cause"; he also lays stress on the influence of the topographical and climatic conditions of the city on the incidence and mortality of the disease. I am afraid a great deal can be said in support of the view that the housing question—rather than poverty—is at the root of the tuberculosis problem, especially the pulmonary variety. Why is it that the death-rate from tuberculosis has risen in

Belfast despite the fact that never were the working classes in such a prosperous condition? Wages never were so high, the working classes never had so much money to spend, they eat of the very best food that can be bought, and at present they are by far the most prosperous people relatively in the community. Not enough reference is made in the report to the existence of overcrowding, nor to the presence of the infective chronic cases residing in the homes; and in Belfast now there is, in addition, a great scarcity of working-class (as well as of all other) houses. Indeed, the effects of the home conditions are admitted in Table VI. of this report, which shows the number of patients who have lived, or are living, with definitely tuberculous relations. No doubt poverty and climatic conditions have some effect, but the fact that in such poor and wet and cold districts as Mayo, in the west of Ireland, tuberculosis is so much less than it is in Dublin and Belfast and many other places, shows that there are other far more important factors in the problem. Koch once said that he could abolish tuberculosis from Berlin in three years if he had the power to isolate from the homes the chronically infective cases in them, and until measures are taken to improve the housing conditions so as to prevent them being hotbeds of infection, neither increased wages, a change (if it were possible) in the climate, nor sanatorium treatment will eradicate pulmonary tuberculosis.

Ulster Medical Society.

At the annual meeting of the Ulster Medical Society held in the Medical Institute, Belfast, on May 30th, Dr. James Colville was appointed President for the session 1918–19. The following were elected the other office-bearers: Vice-Presidents: Dr. J. Clarke (Carrickfergus) and Mr. W. McLorinan (Belfast). Secretary: Dr. C. G. Lowry. Treasurer: Dr. V. G. L. Fielden. Editorial Secretary: Dr. W. W. D. Thomson. Members of Council: Mr. P. T. Crymble, Dr. R. J. Johnstone, Mr. H. A. J. S. Murphy, Dr. G. Robb, Dr. G. A. Hicks, and Dr. S. T. Irwin.

Alfred Valentine Browne, L.R.C.P. & S. Ed.

I regret to announce the death of Mr. A. V. Browne, which occurred at his residence, Albert Bridge-road, Belfast, on June 9th, after an illness of some duration. For many years Mr. Browne was a well-known and greatly liked medical practitioner in a working-class district of Belfast. He represented Pottinger Ward in the city corporation and was surgeon to the Co. Down Railway. Mr. Browne, who was twice married, leaves three children and their mother to mourn their loss.

June 10th.

PARIS.

(FROM OUR OWN CORRESPONDENT.)

Hydrophobia in Paris.

I HAVE already noted the increase of hydrophobia in this city caused by the large number of stray dogs brought in from the evacuated territory. Last September many dogs who accompanied their Parisian masters on their summer holiday returned with rabies incubating. The police were forced to take energetic measures, decreeing universal muzzling, and assuming the charge of all stray dogs. While the monthly arrivals at the depôt for stray dogs at once increased threefold on the average of 500–600, the number of cases of hydrophobia decreased in the same proportion. Then for a time the police were more taken up with strikes than with searching for stray dogs. The food restrictions induced many masters who could no longer feed their pets to abandon them on the streets, with the result that hydrophobia again increased. In April there were 30 cases. Energetic measures were resumed. Six special vans, 5 in Paris itself and 1 in the environs, were employed to collect stray dogs, and for the month of May only 13 cases of hydrophobia were notified. By means of a spot-map the trail of the infected dogs who are disseminating rabies from place to place has been traced out. The disease is now again well in hand.

The Verification of Clinical Thermometers.

Recent inquiry revealed the fact that 80 per cent. of the clinical thermometers employed in the medical service do not register with exactitude, the error sometimes amounting to 2° C. The temperature indicated is usually too high, the explanation being that the thermometers, manufactured in haste when war broke out, are made of glass which has been allowed insufficient time for spontaneous contraction. Further shrinking taking place after the thermometers have been made naturally diminishes the volume of the reservoir and causes the mercury to rise higher than the scale indicates. The constancy of thermometers made before the war by certain German firms was undoubtedly due to the employment of glass tubes more than ten years old. German prisoners now working in the factories of the Service de Santé confirm the fact. The question has been referred to the Senate, which decided that henceforth thermometers are not to be used until tested by a State department. Testing at the Conservatoire des Arts et Métiers hitherto has been optional, and as the fee is almost equal to the price of the thermometer the majority of buyers have not favoured the tested thermometers. The test itself is now seen to be invalid if recent glass is used, for contraction will continue and detract from the accuracy of the reading after the test.

The Effects of Asphyxiating Gas.

M. Rendu, médecin-major, has published the results obtained in the special clinic under his direction dealing with soldiers suffering from enemy gas attacks. Owing to the precautions taken harmful effects have greatly diminished. The inflammatory lesions of the respiratory tract observed in more than two-thirds of the cases are comparable to burns of the second degree and heal with fair rapidity. Excluding certain acute cases of fatal bronchopneumonia, the mortality at M. Rendu's clinic has not exceeded 6 per 1000. There is some reason for anxiety in regard to the future of the patients with latent but, as yet, imperceptible tuberculosis. As a result of gassing the disease may light up and take an acute course.

June 8th.

NOTES FROM INDIA.

(FROM OUR OWN CORRESPONDENTS.)

Plague in India.

THE increase in the number of deaths from plague which has manifested itself of late gives cause for disquietude. The Sanitary Commissioner with the Government of India stated that in no year since 1904 has the plague mortality in India in the month of October exceeded that of 1917, when there were approximately 42 600 deaths reported, as compared with 23,800 in the corresponding month of 1916. At the end of April, 1918, the chairman of the Calcutta Municipal Council reported 13 deaths in the third week of the month, pointing to a recrudescence of the disease in the city.

Clubs for Army Nurses.

The first club in India for Army nurses, the Lady Willingdon Club, was opened in Bombay in November last year, and now it has a sister club in Basra under the same patronage, partly supported by the Women's Branch of the Bombay War Relief Fund, and staffed by the National Y.W.C.A. It is called the Alexandra Club, and is housed in a small building by the creek at Ashar, not far from the famous palm garden.

Drugs and Surgical Instruments in India.

Giving evidence before the Indian Industries Commission Major C. F. Marr, I.M.S., officiating medical storekeeper to the Government of Bombay, stated that there was a large field for Indian capitalists in the medical and surgical manufacturing industry. It would profit Indian mills also if they attempted to make cloth and wool of the texture required for surgical dressings. He suggested the desirability of introducing a systematised industry for the making of packing cases, and pointed out that there were valuable by-products which gas companies were now wasting and which could be conserved and utilised for the making of drugs. He gave the history of the Government's endeavour to repair surgical instruments in India. Thirty or forty years ago Government condemned a large number of surgical instruments for lack of facilities to repair them, but the defect had been cured considerably. The making of surgical instruments required considerable skill in different branches of manual labour and it was no easy matter to develop the

industry in India. Major Marr's experience led him to suggest that legislation on the lines of the Food and Drugs Act at home should be introduced into India. The Indian labourer was not capable of turning out products which could be relied on for quality and quantity unless he was constantly and closely supervised. The drug industry possessed considerable facilities for malpractice. The lives of patients depended upon the action of drugs, and the manufacture of drugs and medicinal compounds should not be allowed except under licence. The large amount of drugs which Government had had to purchase in the Indian market had led some enterprising individuals to set themselves up as manufacturers of drugs. These, as at present constituted, were in most cases not reliable. None but those who had undergone a proper and complete training in a pharmacy and were qualified at a recognised institute should be permitted to manufacture drugs. He would, therefore, suggest that facilities be given for the study of pharmacy in India. This could be achieved by opening training colleges at convenient centres. There was a vast and profitable field in the drug industry, but it must be approached from a scientific point of view and conducted under expert and qualified chemists. Major Marr also suggested a system of check and supervision over the production of drugs by properly appointed inspectors who would have the authority to inspect drug shops or factories.

The Red Cross in India.

Sir Claude Hill, a member of the Viceroy's Council, has succeeded Surgeon-General Sir Pardey Lukis as chairman of the Indian Joint Committee of the Red Cross and Order of St. John. Mr. W. H. Hanrahan has been confirmed in the appointment of General Secretary.

Pasteur Institute's Work in Southern India.

The annual report of the Pasteur Institute of Southern India shows that the number of patients during the year 1917 was 1707, an increase of 217 (Asiatics, 167; Europeans, 50). Four died during the course of treatment, five died in less than 15 days from the date of the completion of the treatment, and five died 15 or more days after the completion of the treatment.

Hospitals and Medical Schools in India.

Some interesting figures of hospital accommodation in India are given in this, the fifty-second annual statement recently laid before Parliament:—

In the year under review the number of aided civil hospitals and dispensaries was 2996, as against 2856 in the previous year. The number of in-patients increased to 541,549 and of out-patients to 33,032,052, and the number of operations rose to 1,356,841. There were also 856 State special and railway hospitals, with a total of 2,730,986 patients, and 714 private non-aided institutions, with 5,063,947 patients. Travelling dispensaries are employed in some provinces. The Bengal Nursing Association has begun to train Indian women as nurses in Mofussil hospitals. A similar scheme was brought into force in Burma. In the United Provinces and Burma the system of charging fees to well-to-do patients was continued with success. There are five medical colleges (Bombay, Madras, Calcutta, Lahore, and Lucknow), the students in which numbered in 1915 2096 including 79 women. There are also 17 medical schools, the students in which numbered 2936. There is an X ray institution at Dehra Dun, where a class of instruction was attended by 20 students. Branch installations opened at Delhi and Simla are obtaining a large number of patients. There are Pasteur Institutes for antirabic treatment at Kasauli (Punjab) and Coonoor (Madras). The number of patients treated in the former increased to 5046, and in the latter to 1490. A new Pasteur Institute was opened at Rangoon, and the foundation-stone of another was laid at Shillong during the year.

The Dearth of Doctors in Bengal.

The lack of sufficient medical practitioners in Bengal is making itself keenly felt. A resolution on the recent triennial report on the working of the hospitals and dispensaries in the presidency recognises that there is need for a supply of doctors in excess of the numbers obtainable from existing medical colleges and institutions. The possibility of establishing schools in connexion with the larger district hospitals is therefore being considered. Some part of the scarcity is doubtless due to the war, as 35 officers of the I.M.S., 29 military assistant surgeons, 3 civil surgeons, and 69 sub-assistant surgeons are away on military service.

THE CORONERS' SOCIETY.—At the annual general meeting of the Coroners' Society of England and Wales, held in London on June 6th, Mr. Walter Schröder, H.M. coroner for Central London, was elected President for the ensuing year, and Dr. F. J. Waldo, H.M. coroner for the City of London and Southwark (a past-president of the society), honorary secretary.

Correspondence.

"Audi alteram partem."

"TUBERCULOSIS IN DUBLIN."

To the Editor of THE LANCET.

SIR,—Although I hesitate to trespass further on your space in relation to the machinery for coping with tuberculosis in Dublin, yet I must crave your indulgence to permit me to answer some criticisms on my letter of April 27th contained in Mr. Caleb J. Powell's letter of May 7th. You will notice that he signs his letter in his official capacity as "Chairman, Insurance Committee for *Borough of Dublin*"—that is, the *City*. It is, therefore, quite beside the question to mention the Meath Hospital in connexion with his committee. That hospital is, as Mr. Powell correctly states, "part of the machinery for treatment under the tuberculosis scheme for the *County of Dublin;*" it is not at present part of the machinery for treating tuberculosis under the scheme for the *City of Dublin*.

In justice to myself, I may state that I was familiar with the recognised procedure for obtaining sanatorium benefit for city patients suffering from tuberculosis, whether insured or non-insured, which held good until March 31st of the present year. On that date the previous arrangement between the Corporation and the Insurance Committee for the borough of Dublin was determined. Of that serious change in the arrangements, so far as I know, no one thought it worth while to acquaint the medical profession practising in Dublin. Certainly I received no intimation of the change. Before March 31st last my practice was, on ascertaining that one of my city patients in the Meath Hospital was tuberculous, to communicate at once with one of the tuberculosis medical officers of the corporation by letter, or telephone, or personally at the Corporation Tuberculosis Dispensary, Charles-street, Dublin. The medical officer then saw the patient at the dispensary or very kindly visited him or her at the hospital if too ill to attend the dispensary, and undertook the further necessary steps to place the patient either in a sanatorium or in a hospice or rest for the dying. No difficulty whatever arose in any of my cases until last month (April, 1918), when the incident took place to which I referred in my letter of April 27th.

The facts as to the relation between the Insurance Committee and the Corporation of Dublin are substantially as follow. About two years ago these bodies entered into an agreement whereby the Insurance Committee undertook to pay the Corporation an agreed proportion of the grant for the sanatorium treatment under the National Insurance Act, while the Corporation undertook to look after insured, non-insured, exempted dependants, and hospital surgical cases, subject to certain conditions. In the first place, all recommendations for institutional treatment should be made by the Corporation tuberculosis medical officer—in other words, the tuberculosis officer was to act as the medical adviser to the Insurance Committee, as had hitherto been the practice. It was also arranged that, if any of the parties to the agreement wished to determine it, the Insurance Committee with the approval of the National Health Insurance Commission, or the Corporation, with the approval of the Local Government Board, could give twelve months' notice. As a matter of fact, the Insurance Committee did give the Corporation twelve months' notice in March, 1917, and so the agreement terminated on the last day of March, 1918. It is necessary to state that the Corporation of Dublin has plenty of funds to deal with the tuberculosis problem and possesses two sanatoriums—one intended for the reception of early cases at Crooksling, situated in the Dublin Mountains at an elevation of some 600 feet above the sea; the other, for advanced cases, on the south wall of Dublin Harbour, at sea level and nearly a mile from the mainland. The Corporation has power to strike a rate, a power which the Insurance Committee does not possess. On several occasions within the past few years the grant allowed to the Insurance Committee has proved, I believe, insufficient to meet the expenses of the Committee, with the result that this body has had to refer cases to the Corporation for treatment, not having funds with which to treat them itself. These patients are labelled "insolvent insured," the Insurance Committee apparently forgetting that it was

itself which was insolvent and not the unfortunate patients who had paid their contributions.

Since attention has been drawn to my previous letter, I understand that the legal adviser of the Corporation has given an opinion that even after insured tuberculosis patients have been examined by the medical officer of the Insurance Committee they cannot be admitted to the Corporation sanatoriums until they have again been examined and certified for sanatorium treatment by the tuberculosis medical officer of the Corporation. Mr. Powell, in his letter, takes exception that "no notification" of my patient's case "has been sent to the Insurance Committee." In answer to this I reply that my patient's case was not notifiable under "The Tuberculosis (Conditions of Notification) (Ireland) Order, 1909," of the Local Government Board for Ireland.

I am, Sir, yours faithfully,

Dublin, May 29th, 1918. JOHN W. MOORE, M.D.

IN MEMORY OF LORD LISTER.

To the Editor of THE LANCET.

SIR,—Lord Lister died some years ago, and at his death was accorded all the honour within our power to bestow. His name is revered throughout the civilised world; the debt which humanity owes him can never be discharged. And yet, despite this great indebtedness, something seems to be lacking in respect to its recognition. No official steps have been taken to perpetuate his name and the magnitude of his work. The recent attractive and sympathetic biography by Sir Rickman Godlee has added to the glory of his name. But while we of this generation have read and appreciated it, the duty seems to be incumbent upon us to afford some opportunity for posterity—those who will succeed to the heritage founded by Lister—to learn and profit by the lessons of his life. There is the example of the educative influence of the biennial Hunterian Oration, by which, no doubt, since its inception, every succeeding generation must have benefited. The Hunterian Oration was founded by Dr Mathew Baillie and Sir Everard Home 20 years after John Hunter's death, for the purpose of "showing a lasting mark of respect" to his memory. Are not the claims of Lord Lister to the same or a similar honour just as great as those of John Hunter? If not at the Royal College of Surgeons, might it not be that the Royal Society of Medicine should found a biennial Listerian festival, inclusive of an oration, designed to endorse and perpetuate our "mark of respect" for the great achievements of his life and in honour of the name of Lister. I am, Sir, yours faithfully,

London, W. P. D.

THE TREATMENT OF "FUNCTIONAL PARALYSIS."

To the Editor of THE LANCET.

SIR,—In the leading article in your issue of May 18th, commenting on a paper by Captains T. Graham Brown and R. M. Stewart, under the heading, "The Physiology of 'Functional Paralysis' of Voluntary Movement," appears the statement that "year-long psychological analyses have taken the place of clinical investigation of somatic data, and objective study of motor, sensory, and reflex phenomena has been ousted by oneiromancy." Reference is made to the doctrines of Charcot; surely Charcot studied hysteria clinically in a manner the thoroughness of which could hardly have been surpassed. The results we know, and his successors now condemn them. If the method of intensive study of the senses of posture and of movement be employed in these cases there is the considerable risk that the cultivation of hysteria will be one, if not the sole, product. The hysterical patient is only too ready, when called upon to do so, to oblige with the exhibition of interesting clinical phenomena.

In speaking of "year-long analyses" research and practice are confused. No one in a military hospital has time for "year-long analysis." In the course of a research into psychical phenomena a patient might with propriety be analysed for a very long period, but in ordinary clinical medicine every method of investigation is not carried out with every single patient. There is no time. In a research many methods must be employed, most of which will be required in practice only occasionally. Those with a knowledge of psychology, sufficient to enable them to practise oneiromancy, do not need so formidable a method to remove a functional paralysis. Simple explanations and persuasion, if the mere removal is to be the end and aim of treatment, suffice. It is for quite another reason that oneiromancers practise their art—viz., to get at the state of mind which has led up to the hysterical accident, and if possible to prevent its recurrence.

After reading your leading article, and then turning to the paper by Captains Graham Brown and Stewart, one is surprised to find that after all it was by a psychical method of persuasion that the patient's symptoms were removed. The method of treatment by exploiting the senses of posture and of movement was resorted to only after the paralysis had been already overcome. The chief difference between the method employed by the authors of the paper and that of the ordinary neuro-psychologist seems to be that the latter usually prefers to do his work with his patient awake and sober, whilst they, on the other hand, apparently find it easier to get their persuasion accepted when he is intoxicated. At the present time the practice at most neurological hospitals is to abolish hysterical manifestations at a single sitting and with the patient wide awake, and at such hospitals the failures are few. If this be so, is not the article under consideration retrograde?

We are, Sir, yours faithfully,

R. WORTH, Temp. Major, R.A.M.C.
T. A. ROSS, Temp. Lt., R.A.M.C.

Springfield War Hospital, Upper Tooting, May 21st, 1918.

ON FACIAL EXPRESSION IN THE DEAD.

To the Editor of THE LANCET.

SIR,—I have before me a short story of the Sherlock Holmes series in which there is a description of a murdered man. It is said that "his features were convulsed into a spasm of vindictive hatred which had set his face in a terribly fiendish expression." Similar descriptions of expression of emotion on the face of the dead are not uncommon in fiction. Can any of your readers say whether actual observation bears out the possibility of such appearances? At the time of death the muscles of expression, like all other muscles, relax, the face becomes pallid, and the eye loses its lustre and becomes more or less flaccid. In the post-mortem room, so far as I have observed, there is never any expression of emotion on a dead face. The look of pain and distress which is often seen in the moribund passes away at death and the face consequently becomes calm and peaceful. There is the look of sleep. If the eyes have not been closed and the jaw has dropped there is a fixed stare with an open mouth, which has no relation to any mental condition *in articulo mortis*. Anything like an expression of fear, anger, or any strong emotion has not been observed by any authority that I have been able to consult. At the same time I have never seen a recently murdered man. I should like to know from those at the front, who have seen many soldiers suddenly struck down, their experience on this point. Is there hate, for instance, on the face of a dead German? Sherlock Holmes is likely to be right, but may one ask for scientific evidence?

I am, Sir, yours faithfully,

Leeds, June 3rd, 1918. J. B. HELLIER, M.D.

WINDLESHAM MILITARY HOSPITAL.—The third annual report of the committee of this hospital states that the extension for an accommodation of 60 beds, which was opened in May, 1917 has been fully utilised by the Cambridge and Connaught Hospitals at Aldershot and by the Canadian medical authorities. The total number of cases dealt with by the Surrey V A D., 16th Detachment, during the war down to December, 1917, was 1541, of which 1079 have been at Windlesham Moor and 394 at Windlesham Court, where the extended accommodation was made, the remaining 68 having been previously treated at Birch Hall and Penny Hill Park respectively. It is pointed out that the Government grant of 3*s.* per day per case under treatment, together with the small additional allowance for unoccupied beds, is insufficient to cover the expenditure, and except for the generous support of subscribers it would be impossible to carry on the work on the present scale.

The War.

THE CASUALTY LIST.

THE following medical officers appear among the casualties announced since our last issue :—

Killed.

Capt. F. A. J. R. Brooke, R.A.M.C., attached Wiltshire Regiment, was a student at the London Hospital and qualified in 1894. For some few years he practised at West Bridgford, Notts, and prior to joining up he practised at Charlbury, Oxon.

Surg.-Prob. M. D. Cadman, R.N.V.R.

Died of Wounds.

Capt. F. G. Thatcher, M.C., R.A.M.C., qualified at Edinburgh in 1913, and was for a few months in practice at Edinburgh before joining the R.A.M.C. At the time of his being wounded he held the appointment of Deputy Assistant Director of Medical Services. The award of the M.C. was recorded in THE LANCET of last week.

Capt. E. E. Meek, Canadian A.M.C., qualified at Winnipeg in 1901, and was in practice at Regina, Saskatchewan, prior to joining the Expeditionary Force.

Died.

Lieut. T. Forrest, R.A.M.C., attached Indian Army, qualified at Glasgow in 1917, and after holding an appointment at the Western Infirmary joined the R.A.M.C.

Wounded.

Capt. G. P. Searle, Canadian A.M.C.
Capt. G. E. Charters, R.A.M.C., attached R. Scots.
Capt. J. C. Dunn, D.S.O., M.C., R.A.M.C., attd. R. Welsh Fus.
Capt. P. W. Kent, R.A.M.C.
Major T. M. Furber, Australian A.M.C.
Major C. H. Westley, Australian A.M.C.
Major F. C. Chandler, R.A.M.C.
Capt. F. Humphreys, R.A.M.C., attd. Shrops. Light Infantry.
Capt. E. H. Rainey, R.A.M.C., attached Lincs Regiment.
Capt. L. L. Satow, M.C., R.A.M.C.
Capt. W. N. Soden, M.C., R.A.M.C., attached R.F.A.
Major F. L. Bignell, Australian A.M.C.
Capt. D. A. Davis, Australian A.M.C.

Previously reported Missing, now reported Prisoners in German Hands.

Capt. A. B. Cluckie, R.A.M.C., attached Lancs Regt.
Capt. R. A. Leembruggen, R.A.M.C., attached Suff. Regt.
Capt. G. R. Lipp, M.C., R.A.M.C., attached N. Staffs Regt.
Capt. C. O'Malley, R.A.M.C., attached Middlesex Regiment.
Lieut. W. H. Rowden, R.A.M.C.
Capt. A. J. Chillingworth, R.A.M.C., attd. R. W.Kent Regt.
Capt. C. E. P. Husband, R.A.M.C., attd. North'd Fusiliers.
Capt. F. T. H. Davies, R.A.M.C., attd. Sherwood Foresters.

Missing.

Col. A. Milne-Thomson, C.M.G., M.C., R.A.M.C.
Capt. R. M. Handfield-Jones, R.A.M.C.

OBITUARY OF THE WAR.

JAMES BEVERLEY METCALFE, M.B., CH.M. SYDNEY,

DISTINGUISHED SERVICE ORDER, MILITARY CROSS,
MAJOR, AUSTRALIAN ARMY MEDICAL CORPS.

Major J. B. Metcalfe, who died of wounds on April 25th at the age of 30 years, was son of the late Dr. Metcalfe, of Norfolk Island, and received his education at King's School, Parramatta, proceeding to the University, Sydney, where he graduated M.B., Ch.M. in 1911. His place on the honours list entitled him to a post as R.M.O. at the Royal Prince Alfred Hospital, Sydney, after which he started in private practice in Wellington, N.S.W. Having joined the A.I.F., he went to France early in 1916, was awarded the Military Cross for gallantry in the field in October of the same year, and after seeing service as medical officer in a battalion and also in a field ambulance he was appointed D.A.D.M.S., Australian Corps, and while acting in this capacity was wounded in the battle of Ypres in October, 1917. At the end of March of this year he again went abroad in charge of an advanced dressing station, and it was during evacuation of this on account of heavy shelling that he returned to dress a casualty and received injuries leading to a fatal result on the following day. For his gallantry on this occasion he received a posthumous award of the Distinguished Service Order.

Major Metcalfe combined the artistic temperament with sound common-sense, and was deservedly popular with his senior officers and the men who worked under him. An athlete at school and college, he obtained his double blue in football and tennis. Brave almost to rashness, he was also a good administrator, and possessed professional abilities above the ordinary.

ALFRED GEORGE SARGENT, M.R.C.S. ENG.,

LIEUTENANT-COLONEL, INDIAN MEDICAL SERVICE.

Lieutenant-Colonel A. G. Sargent, who died on May 14th from angina pectoris, was the son of Lieutenant-Colonel J. Sargent, I.M.S. Educated at Bedford Grammar School, he took his medical studies at St. Mary's Hospital, qualifying in 1896. Two years later he received his first commission in the Indian Medical Service, holding several appointments in India as civil surgeon and superintendent of the lunatic asylum at Ratnagiri. In 1890 he saw service in the China Expedition, for which he received the China medal, and he was holding an appointment in Burma until he volunteered for service at the outbreak of the present war. He obtained his majority in 1909, becoming Lieutenant-Colonel last year.

THOMAS JOSEPH FEHILY, L., L.M. R.C.P. & S. IREL., D.P.H.,

CAPTAIN, ROYAL ARMY MEDICAL CORPS.

Captain T. J. Fehily, who was killed in action in France on April 13th, at the age of 33 years, was son of the late Patrick Fehily, of Ballineen, co. Cork. He studied at Cork and Dublin, where he qualified in 1908, subsequently holding a resident post at Jervis-street Hospital. After a short period of private practice in Wales, he took the D.P.H., and became assistant M.O. and pathologist at Devon County Asylum, and later at Rainhill Asylum. Resigning the last-named to join the R.A.M.C. at the outbreak of the war, he was with a casualty clearing station in Gallipoli and France, and was attached to the Royal Fusiliers at the time of his death.

CASUALTIES AMONG THE SONS OF MEDICAL MEN.

The following additional casualties among the sons of medical men are reported :—

Capt. F. G. Thatcher, M.C., R.A.M.C., died of wounds, youngest son of Mr. C. H. Thatcher, F.R.C.S., of Edinburgh.

Capt. J. G. H. Kennefick, D.S.O., Essex Regiment, killed in action, youngest son of the late Dr. J. S. Kennefick, of Clonmel, co. Tipperary.

THE Freemasons' War Hospital No. 2, an extension of the original hospital in the Fulham-road, has now been installed in Fulham Palace and formally opened by its President, the Duke of Connaught. The accommodation provided is 100 beds.

THE CALLING-UP OF MEDICAL MEN.

A letter, dated June 10th and issued by the Central Medical War Committee to honorary secretaries and chairmen of Local Medical War Committees in England and Wales, supplements the memorandum from the Ministry of National Service issued to medical men, with which we dealt fully last week. The letter deals particularly with the duties of the L.M.W.C.'s and with the coöperation desirable in order that the new calls on the medical profession may be met with the minimum of hardship to the medical profession and of inconvenience to the public.

The C.M.W.C. is now the formal medical tribunal under the Regulations, to which all appeals by doctors against being called upon for combatant service, on whatever grounds, must come direct and not indirectly through the L.M.W.C.'s as before.

The "Standard Exemption."

The letter makes clear for the first time the position of the medical man who makes no claim for exemption. In common with the doctor who appeals and who cannot satisfy the tribunal that he ought to have some higher grade of exemption, he is given an exemption known as the "standard exemption," which holds good unless and until he is offered a commission, and subject in the meantime to the condition that he will, if and when required, undertake such professional work as the D.G. of National Service, after consultation with the medical tribunal, shall offer him. The man who takes the exemption offered to him will be in exactly the same position as the great majority of those who appeal for a higher grade of exemption, seeing that it is improbable (judging by the Committee's experience of the past two years and by that of other tribunals) that more than a very few absolute exemptions can be granted. The lines of procedure are again detailed in the letter, and, as some additional points are added to the statement already given, we summarise them thus :—

To meet immediate military requirements it will be necessary in some areas to make a call for military service at once on eligible men of the class just over the old military age. Ordinarily procedure will be on the following lines :—

(*a*) The doctors will be examined medically by National Service medical boards.

(*b*) The Local Arrangements Subcommittee of the C.M.W.C. will meantime be considering from what areas doctors should be spared, either for commissioned service with the Forces or for substitution work in civil practice (if and when required).

(*c*) 14-day notices will be issued to men under 56 in the areas selected in order that they may, if they choose, exercise their statutory right to apply for exemption. With each notice will be sent a "Certificate of Protection" issued by the D. G. of National Service granting protection from military service in the terms of the "standard exemption." *This certificate will have the same effect as a certificate of standard exemption granted by the tribunal.*

(*d*) Applicants who wish for an exemption different from the standard form will be heard by the medical tribunal.

(*e*) Before completing their investigation of an area the central and local committees will know which men have been rejected on medical examination and which (if any) have received on personal grounds exemptions different from the "standard exemption," and are therefore not available for commissions or for civil medical work other than in their own practice.

(*f*) From the men remaining available the local committee will select those whom it thinks can be most easily and suitably spared from the area.

The process will, in fact, be almost exactly analogous to that which has been carried out during the past two years, the only difference being that a doctor who can be spared from his present work may be used for other civilian work instead of receiving a commission as a medical officer in one of the Forces.

Medical men who are not satisfied with the recommendation of the local committee on their cases or with the provisional decision of the central committee, arrived at without hearing, will be heard if they so desire. At this hearing all relevant circumstances will be taken into consideration, as, for example, personal difficulties, the claim of a man for retention at home as compared with the claims of other local practitioners who are liable under the Acts, and so forth.

The action to be taken by an individual medical man may be once more stated: There is no need to take any action whatever until after he has been medically examined, and not even then until he receives the 14 days' notice from the D.G. of National Service together with the Certificate of Protection which will be offered to every man. He need only take action then if he considers his circumstances are so exceptional as to be likely to obtain something different from the "standard exemption."

The Aim of the Medical Tribunal.

Stated in general terms, the procedure is based on the assumption that preparation must be made for a long war, and that no indication can therefore now be given as to the number of men between 43 and 56 who may be required elsewhere than in their present positions. The letter adds :—

There is no intention of taking the older men if, other things being equal, younger men are available. There is no intention to move men for the sake of moving them. The aim of the central committee will be to disturb as few men as possible. How far this aim can be achieved depends largely on the extent to which arrangements can be made in the urban areas for the release of men by a radical revision of the present conditions of practice. Up to the present the work of the men who have gone has been done mainly by a simple distribution of their patients among their neighbours. This method cannot be depended upon to release many more doctors, and the situation must be met by more far-reaching measures, such as the institution of central surgeries, the pooling of practices, and the moving of doctors from one part of a town to another. It will be necessary in some cases to move doctors from one area to another, but speaking generally, this method will only be adopted when the central and the local committees concerned are convinced that in no other way can the men needed be released for military service.

THE MOBILISATION OF THE MEDICAL PROFESSION IN THE UNITED STATES.

A careful military medical survey is recognised in the United States of America as the first step in the campaign to secure additional medical officers. It is necessary to ascertain the proportion of doctors to the population, the number in each community who are of military age, the number who are already serving, and the precise needs of the civilian population in the various parts of the country. Such a survey is now being undertaken by the American Medical Association. It will give the number of medical men in every county and large city in each State and the numbers of those under 55 and under 45 years of age respectively.

At a recent war conference of the State secretaries of the Association reports were presented of the varying conditions. An abstract of two of these may be of interest :—

Montana.—We have in Montana 47 counties, only 16 of which are organised and 13 thoroughly organised. Our difficulty is to get the physicians from the cities to enlist and to keep the men who are in the country places. We have one city in which 14 men have enlisted, and since 14 men have gone 10 men came in from the country to fill the positions these men occupied in the cities. We need these men in the country towns because there are counties in Montana with an area of 5000 square miles without a physician.

New Jersey.—The State has been gone over with a fine-tooth comb to raise the quota. We have 1750 members of the Association out of a total of some 3000. We have visited all county and local societies repeatedly with officers from the department at Washington. We had no trouble in the rural communities if there was one more man that could go. Our trouble was to get a number of men in the big cities. In addition to appealing to those men we went out, each in our own counties, and did all we could by personal work. I have had conversations with 450 young men in the late twenties and early thirties who I know have not had and cannot have in the whole of their practices of a few years an income to exceed $1500, and most of them not more than $700. It is our conviction that every man in New Jersey who is willing to give his services to the Government has enlisted.

Natural hesitation has been felt by many desirous of applying for a commission in the Medical Reserve Corps regarding the care of their families. The pay of a lieutenant in the Medical Reserve Corps—viz., $2000 per year, plus a commutation, if he has dependents, of from $400 to $600—should be distinctly attractive to the doctor without dependents, while insufficient to support some families in the style to which they have been accustomed. Recent constructive legislation continues, however, to remove many of the obstacles that confronted the American medical man at the first entry of the United States into the war.

The immediate needs of the services may be gauged by the fact that the Surgeon-General of the U.S. Army is calling for 5000 more volunteers for the Medical Reserve Corps, and the Surgeon-General of the U.S. Navy is asking for 100 volunteers a month.

UNITED STATES NAVAL HOSPITAL.—Mrs. Guest, wife of Captain Guest, M.P., has given her residence, Aldford House, Park-lane, London, to the American Red Cross for the purpose of an American naval hospital. The hospital, which will be known as American Red Cross Hospital No. 25, will contain 50 beds for both officers and men, and will be staffed from the Medical Corps of the United States Navy.

THE HONOURS LIST.

The names of the following members of the medical profession and of a few others closely connected with medical activities are included in a lengthy list of appointments to the Order of the British Empire, made on the occasion of the King's Birthday, for services in connexion with the war:—

Knights Commander (K.B.E.).—E. M. Cooke, M.B., Chairman, Board of Control; A. C. Houston, M.B., C.M., D.Sc., Director, Water Examinations, M.W.B.; J. Lumsden, M.D., Vice-Chairman, Joint V.A.D. Com., Ireland; R. Fox-Symons, M.R.C.S., L.R.C.P., Head, Aux. Hospitals Dept., British Red Cross Soc.

Commanders (C.B.E.).—Sir H. C. Cameron, M.D., LL.D., Red Cross Commissioner, W. District of Scotland; T. M. Legge, M.D., Chief Medical Inspector of Factories; Col. W. H. Parkes, C.M.G., D.M.S., N.Z. Exped. Force; Mrs. S. M. Payne, M.B., B.S., Commandant and M.O., Torquay Aux. Hosp.; C. Ryall, F.R.C.S., Assessor in Charge, Lond. Med. Assessors for Exam. of Men for Military Service; Miss J. H. Turnbull, M.D. B.S., Controller of Med. Services, Queen Mary's Army Aux. Corps; S. K. Mullick, O.B.E., M.D., Hon. Sec., Bengali Regt. Com., Calcutta; C. Goodman, M.R.C.S., L.R.C.P., Assist. Director-General, D.P.H., Egypt.

Officers (O.B.E.).—Lt.-Col. J. K. Adey, D.A.D.M.S., Aust. Imp. Force Depôts; J. Allan, M.B., Assist. County Director, Kent, British Red Cross Soc.; T. C. Barkas, M.B., B.S., Acting D.C.M.S., Ministry of Nat. Serv., Northern Region; Fleet Surg. F. Bradshaw, R.N., President of a Recruiting Med. Board; Lt.-Col. A. Bruce, A.M.D., War Office; E. A. Chill, M.D., Assist. County Director, Central Division, Middlesex, British Red Cross Soc.; A. Cox, M.B., Sec., Central Med. War Com.; Miss B. M. Cunningham, M.B., Ch.B., Military Hosp., Imtarfa, Malta; Lt.-Col. B. R. Dennis, M.B.; Mrs. K. R. Drinkwater, M.B., B.S., Military Families' Hosp. Staff and Dept. Malta; Maj. W. B. Edwards, M.D., Com. for Med. Services for Ministry of Nat. Serv., Welsh Region; W. Fairbank, M.V.O., M.R.C.S., L.R.C.P., Organiser and Instructor in Amb. Work, Windsor District, British Red Cross Soc; Maj. C. E. Goddard, M.D., President of a Recruiting Med. Board; T. H. Graham, Sec., Scottish Med. War Emergency Com.; Lt.-Col. W. E. Grigor, Aust. A.M.C.; Staff-Surg. R. J. E. Hanson, R.N.V.R.; T. E. Hill, M.B., M.O.H., co. Durham; J. W. Hodgson, M.D., V.D., Commandant and M.O., Exmouth Aux. Hosp., Devonshire; Maj. G. Home, O/c., Surg. Div., No. 2 N.Z. Gen. Hosp.; E. W. Hope, M.D., D.Sc., M.O.H., Liverpool; A. Hunter, L.R.C.S., Chief M.O., Karl's Court Belgian Refugees Camp; Maj. A. H. Johnston, M.R.C.S., L.R.C.P., Assist. County Director, British Red Cross Soc., E. Riding Yorks; W. D. Loveday, M.R.C.S., L.R.C.P., Designer of the Wantage Crutch; W. H. McMullen, M.B., B.S., F.R.C.S., Specialist Member of a Recruiting Board; Maj. W. L. Martin, T.D., Dep. Com. of Med. Serv., Ministry of Nat. Serv., Perthshire; Lt.-Col. F. H. Mewburn, Canadian A.M.C.; Maj. T. L. Sandes, M.B.E., O/c., Surg. Div., S.A. Hosp., Richmond; Maj. H. Short, N.Z.M.C.; R. J. Smith, M.B., B.Ch., Chairman, Cardiff Local War Pensions Com.; C. R. J. A. Swan, M.B., B.Ch., Administrative M.O., R.A.F. Hosps.; Miss M. Thorne, M.D. Hosp. and Staff Depts., Malta; F. T. Travers, M.B., F.R.C.S., Commandant and M.O., Maidstone Aux. Hosp., Maidstone; Maj. A. L. Urquhart, R.A.M.C.; Capt. T. G. Wakeling, President of a Recruiting Med. Board; Capt. J. Wallace, Dep. Com. of Med. Serv., Ministry of Nat. Serv.; Fleet-Surg. A. E. Weightman, R.N., Med. Dept. Admiralty; Fleet-Surg. S. H. Woods, R.N.; Lt.-Col. J. M. Crawford, M.B., C.M., I.M.S., Benares, United Provinces; Maj. H. Ross, M.B., F.R.C.S.I., Additional A.-D.-G. I.M.S., Bengal; Maj. S. W. C. Bradfield, M.B., F.R.C.S.E., I.M.S., Hosp. Ship *Sikkim*; Capt. H. Stott, M.B., I.M.S., Hosp. Ship *Madras*; Rai Bahadur Sir K. C. Bose, C.I.E., Medical Practitioner, Calcutta; Dr. W. A. Briggs, Med. Miss. in Siam; C. Todd, Principal Bacteriologist, D.P.H., Egypt.

Members (M.B.E.).—W. E. Audland, M.R.C.S., L.R.C.P., Assist. County Director, Northamptonshire, British Red Cross Soc.; Lt. G. T. Brown, Canadian A.M.C.; J. H. Burridge, M.R.C.S., L.R.C.P., Commandant and M.O., Slough Aux. Hosp.; H. G. Cooper, M.R.C.S., L.R.C.P., Assist. County Director for Altrincham Div. of British Red Cross Soc.; Mrs. B. G. R. Crawford, M.B., Ch.B., M.O. at one of H.M. Factories, Ministry of Munitions; J. E. Cresswell, M.B., P.M.O., Suez; Miss L. D. Crippe, M.B., Ch.B., M.O. at a National Filling Factory; Mrs. M. A. S. Deacon, M.B., B.S., M.O. at a Filling Factory, Ministry of Munitions; A. A. G. Dickey, M.D., Organiser, Colne, Aux. Hosp. E. Lancs; Capt. W. V. Eaves, M.O., Royal Arsenal, Woolwich; D. Forbes, M.D., M.O.H., Brighton; Capt. W. H. Fox, Canadian A.M.C.; Miss C. Fraser, M.B., Ch.B., M.O. at one of H.M. Factories, Ministry of Munitions; W. J. Gilpin, L.R.C.P., M.R.C.S., Commandant, Bourne Aux. Hosp., S. Lincs; A. S. Green, M.B., B.S., Commandant and M.O., Boutham Aux. Hosp., N. Lincs; Capt. A. Harwood, Statistical Branch, Dept. of Director-General, A.M.S.; Miss B. M. Hewitt, M.D., M.O., Women's Hosp., Royal Arsenal, Woolwich; T. W. Hicks, M.D., Commandant, East Finchley Aux. Hosp.; J. E. Kingsland, Med. Dept., Ministry of Nat. Serv.; Capt. R. Kirkpatrick, Canadian A.M.C.; J. MacLachlan, M.B., C.M., Hon. Sec., Sutherland Branch, British Red Cross Soc.; Miss F. M. Morris, M.D., Commandant and M.O., Paignton Aux. Hosp.; A. A. Osborne, M.R.C.S., L.R.C.P., Commandant and M.O., Ilfracombe Aux. Hosp.; L. Powne, M.R.C.S., Commandant and M.O., Crediton Aux. Hosp.; Miss M. T. Ritchings, M.B., Ch.B., M.O., Y.M.C.A. Aux. Hosp. Swansea; Capt. J. M. Ross, F.R.C.S., County Director, Dumfries, British Red Cross Soc.; A. C. Butler-Smythe, F.R.C.S., Member of a Recruiting Med. Board; W. H. Walden, Assist. Insp. of Med. Supplies, A.M.S.; Mrs. E. C. Williams, M.B., B.S., M.O. at a Shell Filling Factory; H. J. Andrews (temp. Lieut.), I.M.S., M.O. of Thomas Emery Hosp. at Moradabad, United Provinces; Surat Kunwar Chaudhuri, M.B., Benares State Service, United Provinces; E. A. C. Hindmarsh, F.R.C.S., L.R.C.P., Officiating Civil Surgeon, Muzaffarpur, Bihar and Orissa; M. R. W. Hart, Ind. Sub. Med. Dept., Assist. Surg., Madras; Khan Sahib Sayad Nazir Hussain, Ind. Sub. Med. Dept. Civil Surg., Mianwali, Punjab.

Honorary Members (H.M.B.E.).—Ali Ibrahim Bey, Sen. Assist. Surg., Kasr el Ainy Hosp., Cairo; Wadih Bey Birbari, P.M.O., Nagazig Hosp.

The *Medal* of the O.B.E. has been conferred upon Dr. E. J. Berkley and upon Dr. A. R. Moore, who "displayed great courage and devotion in rescue work on the occasion of a Zeppelin raid"; and also upon Dr. B. Wright, divisional surgeon, Metropolitan Police, "for courage and devotion in attending to the injured on the occasion of an air raid."

MENTIONED IN DESPATCHES.

The final section of the list of those mentioned in Sir D. Haig's despatch, the previous sections of which were given in THE LANCET of June 1st, contains the names of the following overseas medical officers:—

Canadian Army Medical Corps.—Capt. J. E. Barry; Col. H. A. Bruce; Lt.-Col. G. J. Boyce; Capt. H. McL. Cameron; Lt.-Col. D. Donald; Lt.-Col. A. S. Donaldson; Col. J. M. Elder; Maj. A. W. M. Ellis; Maj. G. H. R. Gibson; Lt.-Col. A. L. O. Gilday; Maj. G. G. Greer, M.C.; Lt.-Col. J. A. Gunn; Temp. Lt.-Col. J. N. Gunn; Temp. Capt. F. R. Hassard, M.C.; Lt.-Col. J. Hayes; Col. H. M. Jacques, D.S.O.; Lt.-Col. D. P. Kappele; Maj. T. A. Lomer; Maj. (acting Lt.-Col.) H. H. Moshier; Maj. G. S. Mothersill, D.S.O.; Lt. Col. A. C. Rankin; Capt. W. A. Richardson; Col. A. E. Ross, C.M.G.; Temp. Maj. (acting Lt.-Col.) E. R. Selby; Maj. (temp. Col.) A. E. Sell, D.S.O.; Lt.-Col. J. Stewart; Maj. G. S. Strathy; Capt. S. J. Streight; Capt. W. C. Walsh; Capt. H. W. Whytock; Col. R. P. Wright, D.S.O.; Temp. Capt. H. G. Young, D.S.O.

Australian Army Medical Corps.—Capt. R. D. Bartram; Maj. F. L. Bignell; Lt.-Col. E. T. Brennan, M.C.; Maj. E. A. Brummitt; Maj. A. L. Buchanan; Maj. A. R. Clayton; Maj. W. J. W. Close; Capt. (Temp. Lt.-Col.) W. H. Collins, D.S.O.; Capt. G. V. Davies, D.S.O.; Lt.-Col. T. P. Dunhill; Maj. A. T. Dunlop; Maj. D. M. Embleton; Maj. T. C. C. Evans; Capt. A. J. McK. Fargie; Capt. R. P. W. Francis; Capt. J. C. M. Harper; Capt. M. J. Holmes; Capt. A. J. de S. Howard; Maj. E. L. Hutchinson, D.S.O.; Col. R. B. Huxtable, D.S.O., V.D.; Lt.-Col. W. E. Kay; Maj. F. N. le Messurier; Capt. J. A. Love; Maj. D. S. Mackenzie; Lt.-Col. (temp. Col.) F. A. Maguire; Maj. A. McKillop; Maj. (temp. Lt.-Col.) A. F. Maclure; Capt. R. G. McPhee; Maj. P. A. Maplestone, D.S.O.; Maj. A. V. Meehan; Maj. W. A. Morton; Lt.-Col. B. Quick; Capt. C. M. Samson; Lt.-Col. (temp. Col.) A. E. Shepherd; Hon. Capt. P. Smith; Maj. W. J. Stack; Maj. (temp. Lt.-Col.) V. O. Stacy; Maj. R. J. Taylor; Lt.-Col. H. C. Taylor-Young; Lt.-Col. W. G. D. Upjohn; Maj. W. Vickers.

New Zealand Medical Corps.—Capt. T. W. J. Childs; Maj. E. L. Marchant; Lt.-Col. E. J. O Neill, D.S.O.; Maj. E. A. Widdowson; Maj. H. M. Buchanan; Capt. J. Mitchell.

South African Medical Corps.—Capt. H. R. Lawrence; Maj. C. M. Murray; Lt.-Col. G. R. Thomson.

Indian Medical Service.—Maj. D. H. F. Cowin; Maj. (temp. Lt.-Col.) E. C. Hodgson; Lt.-Col. J. B. Jameson; Maj. E. A. C. Matthews.

A despatch received from General Sir H. C. O. Plumer, G.C.B., &c., mentions the names of the following medical officers:—

Army Medical Service.—Staff: Col. R. J. Blackham, C.M.G., C.I.E., D.S.O.; Col. S. L. Cummins, C.M.G., R.A.M.C.; Col. J. V. Forrest, C.M.G., R.A.M.C.; Lt.-Col. C. H. Furnivall, R.A.M.C.; Capt. T. D. Inch, M.C., R.A.M.C.; Col. L. N. Lloyd, C.M.G., D.S.O., R.A.M.C.; Maj.-Gen. F. R. Newland, C.B., C.M.G.; Temp. Capt. W. J. Pearson, M.C., R.A.M.C.; Lt.-Col. (Temp. Col.) R. Pickard, C.M.G., R.A.M.C.; Col. T. du B. Whaite, C.M.G.

Royal Army Medical Corps.—Temp. Capt. W. E. Bullock; Temp. Capt. P. J. Chissell; Lt.-Col. W. C. Croly; Temp. Capt. S. J. Drake, M.C.; Temp. Capt. J. L. Davies; Temp. Capt. J. S. Doyle; Capt. D. G. Duff, Spec. Res.; Temp. Capt. W. Duffy; Temp. Capt. D. G. Gardiner; Capt. (acting Lt.-Col.) A. Irvine-Fortescue; Temp. Lt. T. B. Johnston; Lt. (temp. Capt.) T. J. Kelly, M.C.; Temp. Capt. T. L. Llewellyn; Capt. H. W. Maltby, Spec. Res.; Capt. T. S. Nelson, Spec. Res.; Capt. (temp. Lt.-Col.) T. H. Scott, M.C.; Temp. Capt. T. Stordy; Temp. Capt. T. Thompson; Temp. Capt. H. Upcott; Temp. Capt. R. R. Watts; Lt.-Col. J. W. West.

Royal Army Medical Corps (T.F.).—Capt. L. Ball; Capt. (acting Maj.) W. Bowater, M.C.; Capt. (acting Lt.-Col.) T. A. Green, D.S.O.; Maj. (acting Lt.-Col.) G. H. L. Hammerton, D.S.O., M.C.; Capt. G. C. Soutter; Capt. B. M. Young.

Indian Medical Service.—Lt.-Col. J. C. Robertson, C.M.G., C.I.E.

The name of the following is also mentioned in a despatch dealing with naval matters:—

Fleet-Surg. W. W. Keir, R.N.

WE are glad to learn that the Scottish Women's Hospital at Royaumont, Villers Cotterets, of which Dr. Frances Ivens is in command, was successfully evacuated last week in the face of severe enemy fire and air raids without injury either to staff or patients.

PROVISION AT PORTSMOUTH FOR WOUNDED AMERICANS.—Certain of the wounded and disabled American soldiers will be brought from the front for treatment in England, and the desire of the Americans is to have a hospital where they can concentrate these patients under their own administration. To meet this wish the 5th Southern General Hospital, which was established in a council secondary school in Southsea in October, 1914, and also the section at the Portsmouth union infirmary used for British soldiers, have been handed over to the American authorities, to be entirely directed by them, for their own sick and wounded. The committee of the Royal Portsmouth Hospital have offered for the use of Americans three wards now occupied by the military on terms similar to those at present existing with the War Office, with the understanding that a ward would be handed back at short notice for discharged British sailors and soldiers when wanted under arrangement with the Ministry of Pensions.

Parliamentary Intelligence.

NOTES ON CURRENT TOPICS.

Armlets for Disabled Soldiers.

ARRANGEMENTS have been made to grant a distinctive armlet—white with an embroidered red crown—to disabled officers and men who are fitted with artificial limbs. The armlet will be issued from the fitting hospitals. A notice will be issued to the public asking for consideration to the wearers of the badge in such circumstances as the entering of omnibuses and tramcars, where their disabilities may place these men at a disadvantage.

HOUSE OF COMMONS.

WEDNESDAY, JUNE 5TH.

Medical Women at Malta and the R.A.M.C.

Captain CARR-GOMM asked the Under Secretary for War whether he was aware of the fact that the women doctors attached to the R.A.M.C. in Malta had protested against the recent deprivation of their privilege as officers of censoring their own letters and the censoring of their letters by an officer of the rank of second lieutenant; whether these ladies had the pay and standing of officers of the R.A.M.C. and had given up practices at home to do this Army work; and whether he would arrange with the officer commanding to restore the privilege that they formerly held.—Mr. MACPHERSON replied: I am having inquiry made and will communicate with my honourable and gallant friend as soon as possible.

Canadian Officers in the R.A.M.C.

Captain CARR-GOMM asked the Under Secretary for War whether he was aware of the fact that certain Canadian officers serving voluntarily in the R.A.M.C. had refused to renew their contracts; whether he was aware that this had in some cases been due to the fact that they considered they had been unreasonably treated by War Office officials at Adastral House; and whether he would inquire into this matter.—Mr. MACPHERSON answered: Canadian officers, in common with other temporary officers serving in the R.A.M.C., are sometimes unable to renew their contracts, but no cases have been brought to notice where this has been due to any unreasonable treatment. If my honourable friend has any particular case in mind I shall be glad to make inquiry.

THURSDAY, JUNE 6TH.

Payment of Medical Boards.

Mr. JOWETT asked the Parliamentary Secretary to the Ministry of National Service whether the medical men who examined men for military service were paid a separate fee for each examination; if so, whether the fee paid for men passed into the Army was higher than the fee paid for the men who were rejected, and what was the fee in each case.—Mr. BECK replied: Doctors serving on any of the National Service Medical Boards are not paid a separate fee for each examination made. They are paid a fixed fee per session. The suggestion in the question, I am glad to say, is therefore without any foundation.

MONDAY, JUNE 10TH.

Dentists in the Army.

Mr. PENNEFATHER asked the Under Secretary for War how many qualified dental surgeons now held commissioned rank in the Army; how many had been commissioned since March 1st, 1918; how many of these had been commissioned from the ranks since that date; and how many were now remaining in the ranks.—Mr. MACPHERSON replied: The number of qualified dental surgeons who hold commissions in the Army is 640. Of these 92 have received their commissions since March 1st last, including 26 from the ranks. As regards the last part of the question, inquiry is being made.

Mr. A. F. WHYTE: Does the right honourable gentleman say that there are only 640 dentists for the British Army?—Mr. MACPHERSON: Yes.

Mr. WHYTE: Scandalous!

Medical Boards.

Sir H. NIELD asked the Parliamentary Secretary to the Ministry of National Service whether there had been any alteration in the constitution of medical boards for the examination of recruits in the London district or elsewhere; what was the nature of the alterations and in what areas had the alterations been effected; by what authority had any such alteration been carried out; and would he give particulars of any departmental order or other document containing, or referring to, the same.—Mr. BECK said that under the stress of the sudden large increase in the number of recruits for the Army it was found necessary to increase the number of acting National Service medical boards in certain districts. It had been found possible to avoid the necessity of any board being constituted of less than three doctors, and this was the minimum number responsible for the passing of any recruit.

Sir H. NIELD: Why has the board, which we were assured in this House would consist of five medical men, been reduced to three without any notification to this House?—Mr. BECK: I must have notice of that.

Sir H. NIELD: Does not the honourable gentleman know that the attention of the Director-General of National Service was specifically called to a circular issued by the Assistant Director of Medical Service in London reducing the board from five to three without any intimation that it was a temporary arrangement?—Mr. BECK: My right honourable friend has had his attention called to an alleged circular which suggested reducing the medical boards to two. That was objected to, and my answer deals with that point.

Mr. HOGGE: Will the honourable gentleman lay on the table of the House the secret orders that have been issued, and is he aware that doctors in many places have flatly refused to accept them?—Mr. BECK: I am not aware of the last part; in fact, my evidence is to the contrary. But I do not understand that there are any medical instructions of the kind. The Department of National Service, in common with other bodies, has issued certain——

Mr. HOGGE: Secret——

Mr. BECK: No; there is nothing secret about them, but the criticism was made that we were employing a system of two doctors. That was objected to, and I am happy to say that it has been found possible to avoid that, and that each recruit will be examined by three doctors.

Sir H. NEILD asked whether the honourable gentleman was aware that recruits on the conclusion of their medical examination at 62, Conduit-street were being requested to put their signature to a paper containing a list of names but no heading or explanatory statement, and were told, in answer to any inquiry as to the object of the request, that it was an acknowledgment or statement that they had been carefully examined or that they had had a satisfactory medical examination; whether he was aware that these signatures were as a rule asked for before the grading had been determined or communicated and while the recruit was still unclothed; and whether he would give instructions to discontinue the practice immediately.—Mr. BECK answered: My honourable friend's information is not quite accurate. It was desired to obtain the observations of the men themselves as to whether they had any complaints to make in connexion with their examination. It was thought that this was in the interests of the recruits themselves and would be a valuable guide to those entrusted with the arrangements and conduct of their medical examination. But as it would appear from my honourable friend's question that the course adopted by the medical board at Conduit-street is open to misconception, I will undertake to see that a procedure is adopted which cannot give rise to any such misconception.

Medical Grading under Military Service Act.

Replying to Mr. JOWETT, Mr. BECK said that men called up for medical examination under the recent Military Service Act were graded relatively to the standards applicable to men of their age, so that where one of these men was classified as Grade I. it implied that he had the full normal physical fitness to be expected of men of that age. The same relative principle applied to the other grades in case of these older men. Consequently the military training and subsequent disposition of the older men by the military authorities was governed by similar consideration. It was their intention that the greater proportion of the older men should be used for garrison and auxiliary duties at home and for similar duties overseas. There was no intention of drafting these men for duty in field formations overseas in the same manner and after the same comparatively short period of training as was customary in the case of younger men; those of the older men who were found to be fit for field service of a less arduous character would receive a modified course of instruction and training under special supervision. Replying to further questions the honourable Member stated that Grade I. for a man of 31 was different from Grade I. for a man of 45.

LONDON INTER-COLLEGIATE SCHOLARSHIPS BOARD: MEDICAL ENTRANCE SCHOLARSHIPS AND EXHIBITIONS, 1918.—Fourteen Medical Entrance Scholarships and Exhibitions, of an aggregate total value of about £1200, tenable in the Faculty of Medical Sciences of University College and King's College, and in the Medical Schools of Westminster Hospital, King's College Hospital, University College Hospital, and the London (Royal Free Hospital) School of Medicine for Women, will be offered for competition on Tuesday, July 16th, 1918. Full particulars and entry forms may be obtained from the Secretary of the Board, Mr. S. C. Ranner, M.A., Medical School, King's College Hospital, Denmark Hill, S.E. 5.

Obituary.

THE RIGHT HON. ROBERT FARQUHARSON, M.D. EDIN., LL.D. ABERD., P.C.

Dr. Robert Farquharson, who for 25 years was Parliamentary representative in the Liberal interest for West Aberdeenshire, died at his residence, Finzean House, Aboyne, Aberdeenshire, in his eighty-second year. His father owned the Finzean property, and Mr. Joseph Farquharson, R.A., the distinguished artist, is his brother.

Robert Farquharson was born in Edinburgh in 1836 and was educated in the town of his birth, first at the Academy there and afterwards at the University, where he graduated M.D. in 1858. After visiting the medical schools of Paris, Berlin, and Vienna he returned to London and held varying appointments, being at one time physician to the Belgrave Hospital for Children and assistant physician at St. Mary's Hospital, where he was also lecturer on materia medica, while for ten years he was assistant surgeon to the Coldstream Guards. Later he became medical officer to Rugby School, retiring from medical practice on succeeding to the family estate.

His Parliamentary career commenced in 1880, and during the 25 years that he represented his constituents in the House of Commons he most conscientiously watched over the interests of the medical profession. His charm of manner and genial disposition gained for him friends and admirers; he was a fluent, shrewd, and witty speaker, and for several years was chairman of the Private Bill Committee in the House of Commons. In his last session he was chairman of the Scottish Liberal Party, and on vacating his seat in 1906 was made a Privy Councillor. Dr. Farquharson was the author of several works on medical subjects, one of which, "A Guide to Therapeutics," passed through five editions. Among his contributions to THE LANCET was one published in 1870 which makes interesting reading to-day. In this he called attention to the possibility, "however remote," of a great European war, and asks, with 10 years' military experience to his credit, "How is it, then, that this picked body of troops [the British Army] are unable to sustain the most ordinary exertions without inconvenience, that marching is frequently attended with fatal results, and that no drill or field-day is free from numerous cases of fainting and prostration?" Dr. Farquharson arrived at the conclusion that the main cause of the troubles which he noted lay in improper dress. It took many years for the authorities to act on the suggestions of Dr. Farquharson and other medical men, but the truth of their observations has since been abundantly proved. The exchange of the old uniform, with its mould of thick cloth like a plaster jacket, tight belts and straps, and leather stock, for the active service dress of to-day accounts in no small measure for the health and efficiency of the modern army. Dr. Farquharson also wrote two interesting books dealing with Parliamentary life, "In and Out of Parliament" and "The House of Commons from Within"; in both he gave play to an abounding sense of humour.

Medical men who become influential in the House of Commons are rare; Robert Farquharson was a really important legislator, as well as a wise and charming man.

URBAN VITAL STATISTICS.

(Week ended June 8th, 1918.)

English and Welsh Towns.—In the 96 English and Welsh towns, with an aggregate civil population estimated at 16,500,000 persons, the annual rate of mortality further declined to 11·5, against rates decreasing from 15·0 to 12·7 per 1000 in the four preceding weeks. In London, with a population slightly exceeding 4,000,000 persons, the death-rate was 11·2, or 1·3 per 1000 below that recorded in the previous week; among the remaining towns the rates ranged from 2·4 in Gillingham, 4·6 in Barrow-in-Furness, and 5·2 in Darlington, to 19·0 in Hull, 20·1 in South Shields, and 33·7 in Barnsley. The principal epidemic diseases caused 324 deaths, which corresponded to an annual rate of 1·0 per 1000, and included 134 from measles, 100 from whooping-cough, 40 from diphtheria, 37 from infantile diarrhœa, 9 from enteric fever, and 4 from scarlet fever. Measles caused a death-rate of 3·2 in Hull, 3·4 in West Hartlepool, and 14·1 in Barnsley; and whooping-cough of 4·1 in Aberdare. The 780 cases of scarlet fever and 1225 of diphtheria under treatment in the Metropolitan Asylums Hospitals and the London Fever Hospital were each 17 below the numbers remaining at the end of the previous week; there were also 2 cases of small-pox still under treatment, but no new case was admitted during the week. Of the total deaths in the 96 towns 126 resulted from violence. The causes of 26 deaths were uncertified, including 5 each in Birmingham and Liverpool, and 2 each in Manchester and Sunderland.

Scotch Towns.—In the 16 largest Scotch towns, with an aggregate population estimated at nearly 2,500,000 persons, the annual rate of mortality was 12·0, against rates declining from 17·0 to 12·4 per 1000 in the three preceding weeks. The 267 deaths in Glasgow corresponded to an annual rate of 12·5 per 1000, and included 15 from measles, 9 from whooping-cough, 4 from infantile diarrhœa, and 1 from diphtheria. The 69 deaths in Edinburgh were equal to a rate of 10·8 per 1000, and included a fatal case each of diphtheria and infantile diarrhœa.

Irish Towns.—The 132 deaths in Dublin corresponded to an annual rate of 17·3, or 0·6 per 1000 below that recorded in the previous week, and included 3 each from measles, whooping-cough, and infantile diarrhœa. The 106 deaths in Belfast were equal to a rate of 14·1 per 1000, and included 2 each from whooping-cough, diphtheria, and infantile diarrhœa, and 1 from measles.

THE SERVICES.

ROYAL NAVAL MEDICAL SERVICE.

Surgeons (acting Staff-Surgeons) to be Staff-Surgeons: E. L. Atkinson, J. S. Austin, A. R. Fisher, A. A. Sanders, F. G. Hitch, F. G. H. R. Black, W. Bradbury, J. S. Orwin, H. Burns, J. Hadwen, G. A. S. Hamilton, W. C. Carson, R. J. G. Parnell, J. H. B Martin, F. L. Smith, C. D. Bell, T. C. Patterson, M. H. Langford, A. Fairley, A. G. V. French, C. G. Sprague, A. C. Rusack, W. H. King H. E. R. Stephens, F. C. Alton, D. Loughlin, C. F. O. Sankey, D. A. Mitchell, E. MacEwan, A. H. Joy, M. C. Mason, A. S. Paterson, M. F. Caldwell, R. N. W. W. Biddulph, E. L. Markham.

ARMY MEDICAL SERVICE.

Col. (temp. Maj.-Gen.) G. D. Hunter, C.B., C.M.G., D.S.O., retired pay, relinquishes his temporary rank, and is granted the honorary rank of Major-General.

Major-Gen. C. H. Burtchaell, C.B., C.M.G., to be temporary Lieutenant-General whilst Director-General of Medical Services, British Armies in France.

Col. A. E. Tate, C.M.G., is placed on retired pay on attaining the age limit.

Col. (Hon. Surg.-Gen.) Sir J. Maher, K.C.M.G., C.B., retired pay, to be temporary Major-General whilst specially employed.

Lieut.-Col. (Bt. Col.) T. W. Gibbard, from R.A.M.C., to be Colonel.

The undermentioned Lieutenant-Colonels, R.A.M.C., to be temporary Colonels whilst employed as Assistant Directors of Medical Services of Divisions: F. J. Brakenridge, C.M.G., D. O. Hyde, D.S.O., T. C. Mackenzie, D.S.O.

ROYAL ARMY MEDICAL CORPS.

Major J. E. Powell relinquishes the temporary rank of Lieutenant-Colonel on re-posting.

Major F. D. G. Howell to be temporary Lieutenant-Colonel whilst employed as Assistant Director of Medical Services of an Army.

Major (acting Lieut.-Col.) R. N. Woodley to be temporary Lieutenant-Colonel whilst employed as Assistant Director of Medical Services of a Division.

Capt. A. Irvine-Fortescue to be acting Lieutenant-Colonel whilst in command of a Medical Unit.

To be acting Lieutenant-Colonels: Temp. Major R. D. Hotchkis, whilst employed at the Dykebar War Hospital; Major R. J. C. Thompson, whilst in command of a Medical Unit.

To be acting Lieutenant-Colonels whilst specially employed: Major and Bt. Lieut.-Col. F. W. Lamballe, Temp. Major J. Russell, Major H. E. J. A. Howley, Temp. Capt. E. A. Gates, Major and Bt. Col. J. S. Bostock, Major J. E. Carter, Temp. Major N. H. Mummery.

To be acting Majors whilst specially employed: Capt. and Bt. Major R. W. D. Leslie; Capt. (local Major) A. T. J. McCreery; Temp. Major G. W. FitzHenry; Temp. Capts. J. Lamont, A. W. G. Woodforde, H. T. Mant, W. F. Thomson, J. V. Bates, W. T. Hedley, F. G. Collins, C. E. Murphy, A. W. Rowe, N. F. Norman, G. A. Skinner, A. E. Marsack, R. J. T. Thornhill, O. de Muth, R. R. Wallace, R. E. F. Pearse, T. D. H. Holmes, F. E. Fielden, H. C. W. Allott, H. B. Wilson, H. D. Smart, H. A. L. Banham, B. Cox, R. W. Nairn, J. P. Musson, R. McRae, T. Martin, A. C. Profeit, G. W. Stone, T. Russell, J. G. Murray, J. MacF. Donnan, J. W. Applegate, G. S. Mill; Temp. Lieuts. J. Maxwell, R. H. Paramore.

Temporary Captains relinquishing the acting rank of Major on re-posting: W. P. Ker, A. R. Esler.

To be acting Majors: Temp. Capts. C. D. Faulkner, J. P. Cahir, C. H. F. Prance, C. Burnham, A. E. Drynan, A. J. Dunlop, C. A. Bernard; Capt. H. W. Farebrother; Lieut. (temp Capt.) E. Davies.

To be Captains:—Capts. (T.F.) S. S. B. Harrison, H. D Lane, F. C. Chandler. Capts. (Special Reserve) R. A. Hepple, T. I. Dun, J. Y. Moore, A. L. Robertson, R. H. Leigh, H. G. Trayer, R. A. Austin, C. Popham, C. de W. Gibb, G. P. Kidd, S. D. Robertson, T. K. Boney, H. S. Milne, Q. V. B. Wallace, J. P. Quinn, J. B Fotheringham; Temp. Capts. C. S. P. Hamilton, C. A. Bernard, R. E Gibson, K. P. Mackenzie, E. G. Fidler, S. Smith, J. H. Fletcher, J. H. Barry, G. d Rastricke Carr, D. H. Hadden, E. F. W. Mackenzie, C. Scales, A. Wilson, C. K. G. Dick, T. R. Snelling, W. E. Adam.

To be Lieutenants and to be granted the temporary rank of Captain: Capts. (Special Reserve) F. J. Hallinan, J. H. Baird, W. D. Anderton, T. D. Inch, W. T. Hare, J. D. Proud, J. E. Rusby, J. H. C. Walker, M. B. King, W. Hunt, C. A. Slaughter, W. H. Ferguson, G. G. Drummond, F. G. L. Dawson, W. M. Cameron, A. Rodd, D. J. Batterham; Capts. (T.F.) S. Robertson, R. T. Jones; Temp. Capts. T. J. L. Thompson, A. G. P. Hardwick, R. D. Davy, J. M. MacKenzie, A. J. Hickey, W. J. Robertson, C. Russell, W. J. Knight, R. A. Mansell, G. T. Garraway, W. L. Partridge, W. D. Newland, L. S. C. Roche, G. T. Baker, G. E. Spicer.

Temporary Honorary Lieutenants to be temporary Honorary Captains: B. McB. Richardson, R. M. Bradley.

W. M. Richards to be temporary Honorary Lieutenant.

To be temporary Lieutenants: F. T. Simpson, J. Anastasi, J. E. Richards, A. V. McMaster, F. S. Adams, G. F Rigden, R. W. Taylor, J. W. Stephen, A. B. Slater, H. Sheasby, J. M. Flavelle, B. F. O'Reilly, W. Hickey, R. F. Twort, J. C. Bell, A. Hogg, S. W. Smith, M. D. B. Tonks, R. H. Watt, G. P. G. Becket, P. Johnson, E. H. Edwards, H. E. White, A. W. H. Cheyne, E. Cansfield, J. A. B. Hicks, J. G. Glasgow,

J. J. Pickles, C. A. Masson, S. Osborn, C. W. Somerville, J. Jamieson, G. M. Crawford, B. Hutcheson, A. H. Davidson, A. Bremner, J. B. J. L. Dalby, A. P. Green, S. H. Wilkinson, J. Russell, A. F. Calwell, B. M. Wilson, H. Harrison, R. C. Redman, A. Y. Hutchison, T. D. Homan, J. Taplin, W. L. Young, E. A. King, C. Edwards, J. L. Annan, F. G. Beatty, J. A. Davidson, E. T. C. Hughes, B. Morrison, F. Shearer, I. D. C. Howden, L. J. Spence, A. G. Tolputt, E. W. Dewey, H. W. Freer, W. Napier, D. R. Wheeler, J. Walker, C. Watson, E. Evans, T. C. A. Sweetnam, H. A. R. E. Unwin, C. R. Dykes, M. A. Macleod, C. J. G. Exley, J. E. Boon, F. A. Stokes, G. L. Lefevre, D. G. Gellatly, D. A. H. Moses, H. L. Parker, L. W. Oliver, C. A. Palmer, F. H. Alexander, T. G. Dickson, E. J. F. Hardenberg, P. J. F. Lynch, N. S. Twist, A. J. de Spiganoviez, F. M. Simmonds, J. C. Loughridge, H. Mowat, J. Elder.

Late temporary Captains granted the honorary rank of Captain: R. W. Buchanan, J. G. Leslie.

To be temporary honorary Captains: Temp. Hon. Lieut. Don J. Knowlton, whilst employed with No. 22 General Hospital; F. Lee Johnson, whilst serving with No. 22 General Hospital (Harvard Unit); R. M. Blake, whilst serving with British Red Cross Society in France.

The undermentioned temporary Lieutenants to be temporary Captains: A. L. Candler, W. H. Orton, H. C. Quirke, H. E. Barrett, R. H. Crompton, R. T. Martin, J. J. Reynolds, A. C. Reid, J. Cullen, A. H. Holmes, O. W. Jones, D. McDougall, C. Gordon, W. B. Griffin, W. Messer, C. E. Lowe, F. B. Penfold, E. L. M. Lobb, D. M. Ross, R. K. Robertson, D. M. Boohan, F. J. Child, F. Green, G. C. Birt, W. J. MacNab, L. J. Spence, R. H. Hunter.

To be temporary Captains: Temp. Lieut. A. G. Wilkins, Temp. Lieut. H. D. Wyatt, Temp. Lieut. S. Nix, D. Wainwright, W. B. Heywood, H. B. Moyle, G. R. Hannon, J. M. Twentyman, H. M. Hart-Smith, P. L. Blaber, A. J. Beadel, W. E. Hills, E. S. Gooddy, J. S. Ross, O. E. Ward, F. E. Easton, G. N. Lorimer, J. S. Annandale, F. R. Smyth, C. H. Brookes, P. McDougall, W. C. P. Bremner, J. A. Haywar'l, L. A. Winter, J. S. Stewart, G. Thom, Temp. Capt. W. L. Webb (from General List), Hon. Capt. A. E. Stevens, J. C. R. Braine-Hartnell, Hon. Capt. R. V. Steele, W. M. Fergusson, Hon. Capt. J. W. Darling, J. J. McMillan, T. W. Ruttledge, E. M. Ashcroft, A. G. Harvey, J. Prichard, R. C. de C. Wheeler, S. J. C. Fraser, R. C. MacKay, D. M. Moffatt, W. R. Reynell, G. Jefferson, J. F. E. Prideaux, A. Lindsay, F. W. Lyle, A. B. Simpson, J. H. Wilkinson, P. J. Murphy, C. F. Dillon-Kelly, L. C. Dillon Kelly.

E. Ringrose to be temporary Lieutenant.

Officers relinquishing their commissions:—Temp. Major A. Paling, on ceasing to be employed with the Horton (County of London) War Hospital; Temp Capts. J. R. H. Ross, H. A. Upward, W. A. Bowman, R. A. McKay, R. L. M. Wallis, J. E. O'Donnell, G. R. Lawless, G. H. Russell (and is granted the honorary rank of Captain), J. MacGregor, V. Colmer, I. W. Magill, H. Hargreaves, T. G. Stevens; Temp Hon. Capt. D. Cotterill (on ceasing to be employed with Scottish Red Cross Society); Temp. Lieuts. H. J. Henderson, J. S. W. Nuttall (on account of ill-health contracted on active service, and is granted the honorary rank of Lieutenant), H. R. Carter, G. R. Cox, W. L. Stuart, J. T. Cameron.

Canadian Army Medical Corps.

Deputy Assistant Director of Dental Services.—Temp. Major A. W. Winnett, C.A.D.C., relinquishes his appointment and grading.

Temp. Major W. M. Hart to be acting Lieutenant-Colonel while commanding a special hospital.

Temp. Capt. G. Shanks resigns his commission.

Temp. Major E. V. Hogan to be temporary Lieutenant-Colonel.

Temp. Capt. S. J. Redpath, Canadian Army Dental Corps, from Central Ontario Regiment, to be temporary Captain.

The undermentioned temporary Lieutenants to be temporary Captains:—J. R. Brais, A. F. McGregor, C. A. Wells, J. W. MacKenzie, N. W. Furey, A. E. Mackenzie, J. H. Howell, Y. Blayney, J. W. Reddick, P. D. McLarren, C. G. Sutherland, H. A. Des Brisay.

TERRITORIAL FORCE.

Lieut.-Col. E. Lloyd-Williams is retired, and is granted permission to retain his rank and to wear the prescribed uniform.

Major (Brevet Lieut.-Col.) B. M. H. Rogers and Major J. B. Bates to be acting Lieutenant-Colonels whilst specially employed.

Major G. F. Whyte to be acting Lieutenant-Colonel whilst commanding a Field Ambulance.

Major W. R. Gibson to be acting Lieutenant-Colonel whilst commanding a Division Train.

Capt. (Hon. Col.) Sir J. P. Stewart, K.C.M.G., C.B., is restored to the establishment.

Captains to be acting Majors whilst specially employed: S. H. Rentzch, G. W. Shore, R. A. Fleming, W. Redpath, F. W. Lewis, D. R. Kilpatrick, W. A. Phillipps, H. J. Gorrie, H. A. P. Robertson.

Capt. M. Coplans to be acting Major while specially employed and remain seconded.

Capt. J. A. C. Macewen is seconded for service overseas.

Capts. F. G. Armstrong and G. M. Benton are restored to the establishment.

Capt. S. F. Smith relinquishes his commission on account of ill-health and is granted the honorary rank of Captain.

Capt. E. F. Buzzard is seconded whilst holding a temporary commission in the R.A.M.C.

Lieuts. H. C. Sands and A. R. Muirhead to be Captains.

W. C. Gibbs and J. G. Saltmarsh to be Lieutenants.

ROYAL AIR FORCE.

Medical Branch.—H. Pritchard (temp. Major, R.A.M.C.) is granted a temporary commission as Major. J. MacGregor, E. H. Hogg, F. Rogerson, W. L. Scott are granted temporary commissions as Captains. G. Bourne, O. F. Conoley, L. C. Broughton-Head, G. H. Johnson, C. Murray-Shirreff, H. T. Prys-Jones, H. W. Toms, H. B. Troup, R. T. Williams, J. J. Savage, L. C. W. Balls, C. S. Dowdell, A. G. Hewer, R. Mugliston, J. C. Smyth, R. A. Spong, H. L. Thorn are granted temporary commissions as Lieutenants.

Second Lieut. (temp. Capt.) G. W. Allen to be Second Lieut. from Tech. Branch), and to retain his temporary rank whilst so employed.

INDIAN MEDICAL SERVICE.

It is officially notified that surgeon-generals in the Indian Medical Service ranking as lieutenant-generals will be granted the rank and title of lieutenant-general, and surgeon-generals ranking as major-generals the rank and title of major-general.

Appointments.

CLARK, FRANCIS, M.D., M.R.C.P., D.P.H., has beenappointed Medical Superintendent, Pinewood Sanatorium, Wokingham, Berks.

ROUTLEDGE, AGNES P., Resident Assistant Physician at the Belvidere Hospital of the Glasgow Corporation.

Vacancies.

For further information refer to the advertisement columns.

Birkenhead Borough Hospital.—Jun H.S. £170.

Brighton, Royal Alexandra Hospital for Sick Children.—H.S. £100.

Bristol Royal Infirmary.—H.P. and H.S. £120.

Canterbury, Kent and Canterbury Hospital.—Hon. S.

Cardiganshire County Council.—County M.O.H. £500.

Chester Royal Infirmary.—H.S. £150.

Durham County Council.—Female M.O. £400.

Egyptian Ministry of Interior, Public Health Dept.—Inspectress for Disp. for Children, &c.

Kent, Bromley Education Committee.—Temp. School M.O. £300.

Kent Education Committee, Maidstone.—Temp. Sch. Med. Insp. and M.O. of Sch. Clin. £385.

Leopardstown Park, near Dublin, Home of Recovery for Discharged Neurasthenic Sailors and Soldiers.—Res. M.O. £400.

London Temperance Hospital.—Asst. Res M.O. £120.

Liverpool Stanley Hospital.—R M.O. £200.

Maidstone Kent County Council.—Tuberc. Officer. £550.

Manchester Corporation.—Temp. Asst. Tuberc. Officer. £450.

Manchester, County Asylum, Prestwich.—Locum Tenens. £7 7s. per wk.

Metropolitan Hospital, Kingsland-road, E.—H.P.

Northampton General Hospital.—Sen. H.S. £300.

Plymouth, South Devon and East Cornwall Hospital.—H.P. £200.

Queen Charlotte's Lying-in Hospital, Marylebone-road, N.W.—Pathologist and Registrar £80.

R.A.F. Hospital Seaside Convalescent Home for Officers, 37, Bryanston-square, W.—M.O.

Royal London Ophthalmic Hospital, E.C.—Refraction Assts. £100.

St Margaret's Hospital, N.W.—Visiting Gynæcologist. 2 gs. each visit.

St. Mark's Hospital for Cancer, Fistula, and other Diseases of the Rectum, City-road, London, E.C.1—H.S. £250.

Southampton Free Eye Hospital.—H.S. £200.

Victoria Hospital for Children, Tite-street, Chelsea, S.W.—H.P. £200.

Winchester, City of—M.O.H. £550.

Wolverhampton and Staffordshire General Hospital.—Res. M.O. £200.

THE Chief Inspector of Factories, Home Office, S.W., gives notice of vacancies for Certifying Surgeons under the Factory and Workshops Acts at Mullingar, Westmeath; at Cruden, Aberdeen; and at Dublin.

Births, Marriages, and Deaths.

BIRTHS.

JULER.—On June 6th, at Cavendish-square, the wife of Captain F. A. Juler, R.A.M.C., of a son.

LAPAGE.—On May 29th, 1918, at 194, Wilmslow-road, Withington, Manchester, to Major and Mrs. C. P. Lapage—a son.

O'KEEFFE.—On June 6th, at Wray House, Havant, the wife of Lieutenant-Colonel J. J. O'Keeffe, M.C., R.A.M.C., of a son.

SHAND.—On June 9th, at Nesscliff, Shanklin, the wife of Captain J. G. B. Shand, I.M.S., of a son.

THOMPSON.—On June 8th, the wife of J. Hilton Thompson, M.D., Heysham House, Bolton, of a son.

MARRIAGES.

BROWN—FRASER.—On June 7th, at Christ Church, Southgate, Captain John Vassie Brown, M.C., R.A.M.C., of Orillia, Ontario, to Agnes, eldest daughter of Mr. and Mrs. Donald Fraser, Selbourne-road, Southgate, London, N.

ELLIOTT—MCCOSH.—On June 8th, at Coulter Parish Church, Colonel Thomas Renton Elliott, D.S.O., F.R.S., A.M.S., to Martha, only daughter of the late A. K. McCosh and of Mrs. McCosh, Cairnhill, Airdrie, Lanarkshire.

GRAHAM—HALL.—On June 5th, at Lichfield, Captain Norman Frankish Graham, R.A.M.C., son of Mr. and Mrs. F. A. Graham, of Bournemouth, to Nora Elizabeth Knox, daughter of Dr. and Mrs. Hall, of Lichfield (late of Ripley, Derbyshire).

HOLMES—JOBSON.—On June 5th, at Broughty Ferry, by the Rev. H. T. J. Waring, B.D., Gordon M. Holmes, C.M.G., M.D., F.R.C.P., Temporary Lieutenant Colonel, R.A.M.C., to Rosalie Jobson, L.R.C.P., M.R.C.S., daughter of the late Brigade-Surgeon, William Jobson, A.M.D.

MENZIES—CAMPBELL.—On June 4th, at Buxton, Percival Keith Menzies, Major, C.A.M.C., to Olive Marie, daughter of Mrs. J. E. Campbell, Belleville, Ontario.

TODD—NORTON.—On May 16th, at the Chapel Royal, Savoy, by the Rev. Hugh B. Chapman, Captain Ronald E. Todd, R.A.M.C., to Eve, only daughter of the late R. B. Norton and Mrs. Norton, of Parkstone, Dorset.

DEATHS.

BROOKE.—Killed in action, on May 27th, 1918, Frederick Arthur John Robertson, Captain, R.A.M.C., M.O. attached Wiltshire Regiment.

CAREW.—On June 4th, at his residence, Nightingale-lane, S.W., Sydney Carew, M.R.C.S., L.R.C.P., aged 66 years.

DUNN.—On June 7th, at Guy's Hospital, Louis Albert Dunn, M.S., F.R.C.S., Senior Surgeon at Guy's Hospital, in his 60th year.

THATCHER.—On June 1st, of wounds received on May 30th, Francis Geoffrey Thatcher, M.C., Captain, R.A.M.C., in his 28th year.

TURNER.—On May 27th, at his residence, "The Haven," Hampton, near Melbourne, Australia, Duncan Turner, M.D., formerly of Nantwich and London.

N.B.—A fee of 5s. is charged for the insertion of Notices of Births, Marriages, and Deaths.

Medical Diary for the ensuing Week.

SOCIETIES.

ROYAL SOCIETY, Burlington House, London, W.
THURSDAY, June 20th.—Croonian Lecture:—Major W. B. Cannon, A.M.C.: The Physiological Basis of Thirst.

ROYAL SOCIETY OF MEDICINE, 1, Wimpole-street, W.1.
MEETINGS OF SECTIONS.
Thursday, June 20th.

DERMATOLOGY (Hon. Secretaries—J. E. R. McDonagh, H. MacCormac; Hon. Acting Secretary—S. E. Dore): at 5 P.M.
Cases (at 4.30 P.M.):
Dr. George Pernet: (1) Premycotic Erythrodermia; (2) Dermatitis Herpetiformis; (3) Acquired Syphilis in an Infant.
Dr. S. E. Dore: Ichthyosis Hystrix Linearis of Palms.
And other cases.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

POST-GRADUATE COLLEGE, West London Hospital, Hammersmith-road, W.
Clinics each week-day at 2 P.M., Wednesday, Friday, and Saturday also at 10 A.M.
(Details of Post-Graduate Course were given in issue of June 1st.)

NORTH-EAST LONDON POST-GRADUATE COLLEGE, Prince of Wales's General Hospital, Tottenham, N.
Out-patients each day at 2.30 P.M.
(Details of Post-Graduate Course were given in issue of April 6th.)

THE THROAT HOSPITAL, Golden-square, W.
MONDAY, June 17th.—5.15 P.M., Special Demonstration of Selected Cases.
THURSDAY.—5.15 P.M., Clinical Lecture.

ROYAL INSTITUTE OF PUBLIC HEALTH, in the Lecture Hall of the Institute, 37, Russell-square, W.C.
Course of Lectures and Discussions on Public Health Problems under War and After-war Conditions:—
WEDNESDAY, June 19th.—4 P.M., Lecture VIII.:—Prof. E. W. Hope: The Influence of a Ministry of Health on Local Organisation and Administration. Followed by a Discussion.
In the Laboratories of the Institute.
Course of Special Demonstrations and Discussions on Venereal Disease in connexion with the work of the Venereal Diseases Department:—
WEDNESDAY.—2.30 P.M., Demonstration IV.:—Dr. A. W. Stewart: Chemical Preparations used in the Treatment of Venereal Diseases.

COLLEGE OF AMBULANCE, 3, Vere-street, Cavendish-square, W.
Course of Special Lectures and Demonstrations on Ambulance Work and First Aid (illustrated as far as may be possible and followed by a Discussion).
THURSDAY, June 20th.—4.30 P.M., Lecture VI.:—Mr. H. Tilley: First Aid in the Treatment of Injuries and Affections of the Ear, Nose, and Throat.

CHADWICK PUBLIC LECTURES, at the Mansion House, E.C.
FRIDAY, June 21st.—5 P.M., Prof. D'Arcy W. Thompson: Our Fisheries and the Food Supply. Lecture I.:—The Catch by Line and Trawl (illustrated with lantern slides).

EDITORIAL NOTICE.

In consequence of the pressure on our space and the shortage of paper, the Editor may be compelled to abbreviate communications, as an alternative to their rejection, when time does not allow them to be reconsidered by their authors.

Communications, Letters, &c., to the Editor have been received from—

A.—Mr. S. E. Atkins, Exeter; Lieut.-Col. Sir Robert Armstrong-Jones, R.A.M.C.
B.—Capt. W. G. Ball, R.A.M.C.(T.); British Science Guild, Lond., Sec. of; Dr. P. Bousfield, Lond.; Mr. E. Brown, Birmingham; Mr. E. R. Bolton, Lond.; Board of Agriculture and Fisheries, Lond.; Dr. G. Blacker, Lond.; Mr. J. Beattie, Belfast.
C.—Mr. J. Cabburn, Lond.; Capt. D. E. Core, R.A.M.C.(T.); Dr. H. C. Carpenter, Philadelphia; Chicago School of Sanitary Instruction, Lond.; Canada, Prime Minister of; Mr. L. Cust, Lond.; Caseln, Ltd., Lond.
D.—Decimal Association, Lond.; Mr. J. L. Dick, Lond.
E.—Mr. A. B. Elliott, Abergele; Dr. H. Elliot-Blake, Beer.
F.—Dr. E. F. Fernando, Lond.; The Food Controller, Lond.; Factories, Chief Inspector of, Lond.
G.—Dr. J. Gairdner, Crieff; Sir A. Pearce Gould, K.C.V.O.; Dr. W. H. Gregory, Beverley; Dr. P. L. Gupta, Northampton.
H.—Mr. C. R. Hewitt, Lond.; Dr. J. B. Hurry, Reading; Staff-Surg. L. Hunt, R.N.
I.—Imperial British Israel Association.
J.—Col. Sir Robert Jones, C.B., A.M.S.
L.—Lister Institute of Preventive Medicine, Lond.; London Inter-Collegiate Scholarships Board, Sec. of; Messrs. Lea and Febiger, Philadelphia.
M.—Medical Research Committee, Lond., Sec. of; Sir Bernard Mallet, Lond.; Ministry of Pensions, Superintendent of Publicity of, Lond.; Medical Defence Union, Lond., General Sec. of; Ministry of Food, Lond.; Lieut. D. Menzies.
O.—Official Press Bureau, Lond.; Sir William Osler, Bart., Oxford.
P.—Mr F. Penny, Seavington.
R.—Mr. J. H. Rhodes, Whitebrook; Dr. A. J. Rice Oxley, Lond.; Royal Society, Lond.; Mrs. Aubrey Richardson, Lond.
S.—Dr. Philip de Santi, Lond.; Dr. H. Sharman, Lond.; Mr. E. Step, Lond.; Capt. J. S. K. Smith; Dr. H. H. Sanguinetti, Lond.; Serbian Red Cross, Lond., Sec. of; Mr. E. W. Sharman, Lond.
T.—Capt. D. Thomson, R.A.M.C.; Dr. S. Tidey.
W.—Col. Sir Almroth Wright, C.B.; Dr. L. A. Weatherly, Bournemouth; Mrs. S. M. Westlake, Grimsby; Dr. F. J. Waldo, Lond.; Mr. S. W. Woolley, Lond.
Y.—Dr. G. Young, Colchester.

Notes, Short Comments, and Answers to Correspondents.

"LESSONS FROM THE ENEMY."

IN a well-written preface to No. 5 of a handy series of Medical War Manuals, authorised by the U.S. Secretary for War (Philadelphia: Lea and Febiger. Price $1.50), Major John R. McDill, M.D., of the U.S. Medical Reserve Corps, explains that he was sent by a German-American society to observe how Germany cares for her war disabled. Parenthetically he remarks that the mass of the people do not want to fight us, they long for peace, but their rulers demand the sacrifice of German life. After dealing with the medico-military organisation, administrative methods, and the medical and surgical aspects of the war, he passes on to the provision made for the treatment and training of disabled men. The German nation is evidently not content to allow men who have suffered for their country to eke out a livelihood by grinding hand-organs or peddling pictures. A well-organised scheme is in force to promote the well-being of these men. A Welfare Committee for the War Disabled was created early in 1915 in each province, on which the leading societies, institutions, and the Army are represented. Serving on the West Prussian Committee, for instance, are the generals commanding the three Army Reserve Corps in the province. The chief functions of these committees are to coördinate the work of their local subcommittees and deal with matters of organisation and administration; they deal directly with exceptional cases. "Welfare divisions" also exist in each reserve military unit; like the local provincial subcommittees, each has its three departments for vocational advice, training, and employment.

The work on behalf of these men commences while they are confined to bed. The doctors, nurses, and all who come in contact with them help them to realise that no apparently serious injury or loss need darken a man's outlook on life if he has firmness of will and determination to make good. Not only do the doctors when going round tell the patients of the facilities provided for re-education, but they decide on the work most suited to the man and induce him to seek the help of the officer for vocational guidance provided at the hospital school (Lazarett-schule). These hospital schools are considered to be the greatest advance made in the medical treatment of the wounded; no empty sleeves or crutches and but few men walking with sticks are to be seen in Germany; statistics at the end of 1916 seemed to warrant the claim that nearly 95 per cent. of the disabled would be made self-supporting. The schools are chiefly formed in connexion with military orthopædic hospitals and treat both serving and discharged soldiers on this pattern:—

On discharge from hospital men are sent to the "welfare division" of their Reserve unit. Steps are taken to insure that the advice as to choice of occupation given in the hospital, at the welfare division, and by the provincial subcommittee coincide. In advising a man very considerable weight is attached to the opinion of the Army doctor; a change of occupation is only recommended under exceptional circumstances. At Coblenz, before an interview, only 42 per cent. of 454 men wanted to resume their former work; afterwards 89 per cent. Every effort is made to prevent them from applying for minor official positions; they are warned not to take up unskilled work if capable of being re-trained or trained for a skilled trade. Their official discharge from the Army does not take place until the men have begun to draw their pensions. Each discharged man is notified to his provincial subcommittee, to which he must report.

As a result of experience gained in the hospital schools the Germans consider it questionable if an arm available for all kinds of work, a so-called universal arm, can be devised. The joints of their workers' arms are placed as close as possible to the end of the man's stump. The arm made by the Siemens-Schuckert firm of Nürnberg for manual work has been found useful for high arm amputations; its use and the various parts and fittings are illustrated in the book.

Cabinet-making is found especially useful; in view of the injuries and the inexperience of the learners the tools are provided with safety appliances; each man uses each tool, thereby avoiding strain and stimulating mental interest. Among other occupations bookbinding, bandage and truss making, sail and rope making, are taught; the blind, in addition to the usual "stunts," carry on rope-making and run certain safe machines.

Disabled farmers and farm labourers receive especial attention. West Prussia has circulated a well-drawn up leaflet advising men to return to the land. While in hospital they receive preparatory training in both elementary educational subjects and practical work, such as agricultural carpentry and basket weaving. Practical farming is taught at a hospital school at Graudenz; discharged men working with artificial arms or legs carry out the heaviest of farm work at an establishment in West Prussia.

Every encouragement and assistance is given to men who wish to become smallholders. Opportunities are afforded the men of learning trades in technical schools and private workshops; in very few instances are single apprentices placed with a master. The list of trades taught is very complete: gunmaking, bandage and truss making, sail and rope making, are among those for which apparently no arrangements have been made in the United Kingdom. The duration of the courses is two years, but can be cut down to 18 months by the town trade councils.

"At the hospital school it is indisputable that without the strong psychic support of the school many a disabled man would be lost to his vocation." (P. 189.) Ordinary military hospital treatment followed by immediate vocational training outside the hospital has not been found satisfactory, the men much prefer to work in the shops in the hospital; "they work side by side with their comrades and are not obliged to compete with younger or normal workmen whose staying ability surpasses theirs and whose rapid progress and success are apt to be depressing to the handicapped man." The workshops are under the direction of doctors who understand and are able to encourage the men.

Germany is imbued with a strong sense of duty to her disabled men; almost all the larger unions have accepted it as an honourable duty to reinstate former workmen and employees and to accept disabled soldiers as new members. The nation realises that not only disabled privates and N.C.O.'s require help; many officers have been assisted, the local and central government authorities are employing them. The creation of a number of new administrative positions for them in the Army is being considered. University courses are provided at Danzig; industrial, commercial, and agricultural interests are prepared to give them preference.

WORK OF A CHILDREN'S CARE SOCIETY.

AN excellent example is provided at Worthing of what can be done in conserving child life, the importance of which has never before been so brought home to the British Empire as in the present, the greatest, crisis in the world's history. For nine years a Children's Care Society has been at work in Worthing, and at the recent annual meeting Dr. R. H. Wilshaw, medical officer of health, whose individual work was at the same time warmly commented upon, was able to report a steady decline in infant mortality in the town as the direct result of the society. The following figures give a little idea of the society's operations:—

968 cases of newly-born infants (and their mothers) and children were cared for. 3388 visits were made by the ward secretaries and lady associates to homes in furtherance of the welfare of infants and other children under school age, and their wants supplied in many cases, including boots and clothing. (In this part of the work the society has the generous assistance of many donors; also a guild of ladies who make garments.) The boot clubs established at 12 schools collected no less a sum than £577 7*s.* 1*d.* in children's pence, and 1461 pairs of boots were supplied; and the attendances at the day nurseries were 4048 of children under 3 and 1132 of children over 3.

The improved healthiness, intelligence, and happiness of future generations in Worthing cannot but be the outcome and the society's reward, and the results must be reflected in the school. An ailing child cannot be expected to profit by what it is taught, but the society ensures that children are, as far as humanly possible, fit for their work.

THE PAPER BANDAGE.

Mr. E. L. Pyke, who spent three years and eight months in the internment camp at Ruhleben, has recently stated in public that two of the things which struck him most on his weekly visits to Berlin were the fact that sewing cotton was sold at 3*d.* the needleful and that the only bandages available were made of paper. If we were reduced to the same extremity the latter drawback would be no great one in view of the excellent paper bandages now upon the market. The Dennison Manufacturing Co., Limited, tag-makers, of New York and Buenos Aires, with a London depôt at Sardinia House (52, Lincoln's Inn-fields), have sent us a sample of a crêpe paper bandage which, it is claimed, is both strong and sanitary. It will, in fact, bear a tensile strain of many pounds, far more than that to which it is exposed in practice, while it may, if required, be sterilised in the ordinary way by dry heat. The bandage is supplied in standard widths of 1, 2, 2½, 3, and 4 inches, each 15 yards in length, at a price per 1000 varying from 120*s.* for the 1-inch to 412*s.* 6*d.* for the 4-inch bandage, which is stated to be approximately one-fourth the price of gauze or muslin bandages. We find the 2½-inch bandage sent to be remarkably elastic, adapting itself as readily to the surface of a limb as a crêpe bandage, while its great length in small compass and the fact that it can be easily torn across will be of convenience to the surgeon. The bandage is supplied wrapped in tissue paper along with a strip of gummed paper to be used for fastening it. We are informed that it is in use on a large scale in American hospitals and Red Cross units, and we have no doubt that it will supply a definite want in this country also and economise the use of gauze and muslin.

WANTED, A HOME.

To the Editor of THE LANCET.

SIR,—A home is required for a patient, a lady aged about 49, whom it is desired to place in residence with a lady experienced in nervous cases. The patient is highly cultivated, depressed, and has a bad family history, but has no fits or surgical or medical complications. Cheerful society and pleasant surroundings are needed for some stretch of time. I am, Sir, yours faithfully,

June 12th, 1918. F.R.C.P.

FIRST-AID IN FEVERS.

OBSERVATION, tact, and resourcefulness are recognised as the principles upon which all effective first-aid must be based, but a reminder is necessary that they cannot be applied without knowledge, and it was on this fact that Colonel William Hunter, senior physician to the London Fever Hospital, laid stress on June 6th in the fourth of a series of lectures on first-aid being delivered at the College of Ambulance (3, Vere-street, London, W. 1). The only help which first-aid can render in cases of fever is, he said, to put the patient to bed and obtain at once the assistance of a doctor. Emphasising the fact that fever was really man's friend, being the danger-signal in disease, he drew a picture of a world in which no such warning was given. Day by day people would be stricken down without apparent cause and with silent mystery. Knowledge of the friendliness of fever should result in losing the fear of it. Fever, thus regarded, became a guide in diagnosing the nature of disease and in controlling its progress. Colonel Hunter went on to explain the meaning of infection, the methods of germ attack—sometimes in mass, sometimes locally—and the virulence of germ poisons, which exceeded that of any product which we could isolate by chemical means. The peculiarity of the disease-producing organisms and their products was their specificity, the poison of scarlet fever, for instance, producing a characteristic rash which did not spread to the face, while in measles it was principally the face which was affected. Inflammation he compared to a system of entrenchment and local fighting, the production of antibodies to the work going on at munition centres and gas factories. In cases of sore-throat he dwelt on the imperative need of calling in help and obtaining a swab from the secretion, for should the case prove to be diphtheria a clear diagnosis in the first 24 hours was crucial for the success of antitoxin treatment.

E. Brown.—Nothing short of a medical education will enable a parent to distinguish between a trivial and a dangerous sore-throat. The doctor may require to submit a swab to the laboratory before being able to do so. Colonel Hunter's recommendation as given above is the only safe one to follow. A lens will not help a parent to read a throat if he has not been taught pathology any more than it will enable him to read the Greek Testament if he has not learned the letters.

L. H. asks for the reference to the treatment of tuberculosis with saccharin by an Italian writer.

F. W. S. calls our attention to the prevalence of the view in Egypt that the camel is a medium of transmitting syphilis to the human subject, and queries whether there is any scientific evidence for the view.

Myalgia would be glad of suggestions for treatment in the following case:—

A professional man, aged 50, has for several years suffered from myalgia. He is very thin, has no organic disease, appetite good, bowels regular, but easily gets tired and is disinclined to make much effort, mental or physical. After any unusual exertion, such as adjusting motor mechanism, grape thinning, &c., requiring certain sets of muscles to be exercised, he gets myalgia. Last year he had an attack of dry pleurisy followed by pleurodynia of affected side. Iodides, colchicum and salicylates have been tried.

J. H. R.—Poplar "fluff" has, we believe, been used to make a kind of vegetable felt, and certainly possesses the lightness and elasticity required for a surgical dressing. We do not know if it can absorb and distribute evenly the wound secretions. With regard to the botanical aspect of the "fluff," Mr. Edward Step, F.L.S., to whom the material has been submitted, reports:—

The "fluff" is produced by the Black Poplar (*Populus nigra*) for the dissemination of its seeds by the wind. The tree is not a native, therefore it does not form woods in this country; but as it has been thoroughly naturalised here for centuries there are localities with moist soils where it is plentiful. The tree is dioecious—one tree bears female flowers only and another individual males only, and for the purpose in view the male individuals are useless. Where the female has been planted in any number the supply of "fluff" should be considerable and can easily be augmented, for branches thrust into moist soil root readily and become big trees in the course of a few years.

METEOROLOGICAL READINGS.

(Taken daily at 8.30 a.m. by Steward's Instruments.)

THE LANCET Office, June 12th, 1918.

Date.	Rainfall.	Solar Radio in Vacuo.	Maximum Temp. Shade.	Min. Temp.	Wet Bulb.	Dry Bulb.	Remarks.
June 6	...	121	74	51	56	63	Fine
,, 7	...	99	66	53	56	61	Cloudy
,, 8	...	119	73	55	57	62	Cloudy
,, 9	...	100	70	53	55	63	Cloudy
,, 10	0·02	117	68	49	51	53	Cloudy
,, 11	...	120	74	52	59	63	Fine
,, 12	...	94	71	53	58	63	Fine

Other information which we have been accustomed to give in these "Readings" is withheld for the period of the war.